

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 369. - Vol. XII.]

LONDON: SATURDAY, SEPTEMBER 17, 1842.

[PRICE 6D.]

STANNARIES OF CORNWALL. IN THE VICE-WARDEN'S COURT.

WHEREAS the Vice-Warden did, on the 13th day of August last, order and decree that a SALE be made of amongst other things the MACHINERY AND MATERIALS upon and belonging to the WHEEL HARMONY, CARDREW, AND MONTAGUE CONSOLIDATED MINES, in the parish of Redruth, within the said Stannaries, under the direction of the Registrar of the Court, and that the proceeds of the sale should be applied by the said Registrar in the manner directed by the order of decree. Notice is hereby given, that pursuant to the said order of decree, a PUBLIC AUCTION will be held at the Wheel Harmony, Cardrew, and Montague Consolidated Mines aforesaid, on Tuesday, the 20th of September instant and following days, at Eleven o'clock in the forenoon of each day, for selling, either together or in lots, the undermentioned MINING MACHINERY AND MATERIALS—viz. SIX STEAM-ENGINE—one 70-horse cylinder, 2 boilers; one ditto, 60-horse cylinder, 2 boilers; one ditto, 50-horse cylinder, 2 boilers; one ditto, 40-horse cylinder, 2 boilers; one ditto, 30-horse cylinder, 2 boilers; one ditto, 20-horse cylinder, 2 boilers; one ditto, 10-horse cylinder, 2 boilers; one ditto, 5-horse cylinder, 2 boilers; one ditto, 2-horse cylinder, 2 boilers; one ditto, 1-horse cylinder, 2 boilers; one ditto, 1/2-horse cylinder, 2 boilers; one ditto, 1/4-horse cylinder, 2 boilers; one ditto, 1/8-horse cylinder, 2 boilers; one ditto, 1/16-horse cylinder, 2 boilers; one ditto, 1/32-horse cylinder, 2 boilers; one ditto, 1/64-horse cylinder, 2 boilers; one ditto, 1/128-horse cylinder, 2 boilers; one ditto, 1/256-horse cylinder, 2 boilers; one ditto, 1/512-horse cylinder, 2 boilers; one ditto, 1/1024-horse cylinder, 2 boilers; one ditto, 1/2048-horse cylinder, 2 boilers; one ditto, 1/4096-horse cylinder, 2 boilers; one ditto, 1/8192-horse cylinder, 2 boilers; one ditto, 1/16384-horse cylinder, 2 boilers; one ditto, 1/32768-horse cylinder, 2 boilers; one ditto, 1/65536-horse cylinder, 2 boilers; one ditto, 1/131072-horse cylinder, 2 boilers; one ditto, 1/262144-horse cylinder, 2 boilers; one ditto, 1/524288-horse cylinder, 2 boilers; one ditto, 1/1048576-horse cylinder, 2 boilers; one ditto, 1/2097152-horse cylinder, 2 boilers; one ditto, 1/4194304-horse cylinder, 2 boilers; one ditto, 1/8388608-horse cylinder, 2 boilers; one ditto, 1/16777216-horse cylinder, 2 boilers; one ditto, 1/33554432-horse cylinder, 2 boilers; one ditto, 1/67108864-horse cylinder, 2 boilers; one ditto, 1/134217728-horse cylinder, 2 boilers; one ditto, 1/268435456-horse cylinder, 2 boilers; one ditto, 1/536870912-horse cylinder, 2 boilers; one ditto, 1/1073741824-horse cylinder, 2 boilers; one ditto, 1/2147483648-horse cylinder, 2 boilers; one ditto, 1/4294967296-horse cylinder, 2 boilers; one ditto, 1/8589934592-horse cylinder, 2 boilers; one ditto, 1/17179869184-horse cylinder, 2 boilers; one ditto, 1/34359738368-horse cylinder, 2 boilers; 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SPECIFICATIONS OF RECENT PATENTS.

(From the *Miner's Magazine*.)

IMPROVEMENTS IN THE MANUFACTURE OF ARTIFICIAL FUEL.

Andrew Korte, manufacturing chemist, Liverpool, for certain improvements in the manufacture of artificial fuel, August 26.—The improvements which are the subject of this patent consist firstly, in mixing with inferior coals such proportionate quantities of coke (made from coals), resin, or naphthalene, with pitch (made from gas-tar), or other bituminous substance, as will equalize or counterbalance the combustible strength or evaporative power of such inferior coal with that of the best coal known or found in England and Wales. The proportionate quantities of superior combustible matters to be added to the inferior coals, in order to bring them up to the same standard of evaporative power as the best English or Welsh coal, must, of course, depend upon the inferiority of the coal to be improved; and as the British Government standard for coals for artificial fuel is, that 1 lb. of fuel shall evaporate 15 lbs. of water, the present patentee takes that as his standard, and the following experiments are related, as showing the manner and proportions in which the addition of combustible matters must be made to inferior coal. "I have found," says Mr. Korte, "that the evaporative power of coals is as follows (by way of illustration):—1 lb. of naphthalene coal will evaporate 17 lbs. of water; 1 lb. of best Welsh coal, 7 lbs. to 8 lbs.; 1 lb. of Liverpool coals, called Smith's coals, 7 lbs.; 1 lb. of ordinary Liverpool coals, 6 lbs. to 6 lbs. Newcastle coals are similar in effect to Liverpool coals, so that it will be readily perceived, that where the best Welsh coal wants, as it were, one of superior combustible matter, ordinary or inferior coals will require four or more parts, and that the proportions must be suited and varied according to the ascertained quality of the coals when in a natural state."

The patentee claims, secondly, certain improvements "in the application and use of certain machinery or apparatus, for the purpose of preparing or mixing the component parts of such artificial fuel, and for conveying or moulding the same into portable and convenient shapes or bricks for use, as follows:—The natural coal is first to be ground, small between an ordinary pair of horizontal grinding-stones, or in a grinding-mill, and is afterwards to be submitted to a drying bin or apparatus, for the purpose of expelling all moisture from the coal. This drying apparatus is to be constructed with three chambers or compartments, say twelve feet long by six feet wide, and by six feet deep altogether. The flooring of these chambers should be of plate-iron, and somewhat dished or concave in the middle, and also provided with a small aperture opening, with a sliding door or cover to each. Between each compartment, and around these chambers, there are flues heated by the flame and air proceeding from the furnace or fire-place situated at one end of the apparatus, and each flue is to be provided with a damper, to regulate the heat as required. The upper chamber or compartment is open at top, and may be called the reservoir; and in this the ground coal is to be placed, after being taken from the grinding apparatus, and heated or dried, so that the principal part of the moisture is evaporated; the sliding door is then to be removed from the opening in the bottom of this reservoir, and the coal raked or pushed down into the middle, or drying chamber. In this chamber the pulverized coal is also to be further dried and heated to about 300 degrees Fahrenheit, so as to remove whatever remains. The sliding door is next to be removed from the aperture in the bottom of this chamber also, and the coal passed into the bottom, or mixing chamber. The pulverized and dried coal now lying in the lower chamber, the pitch, or other auxiliary combustible matter, is to be supplied through a trough, or other convenient means, and in such proportions as have been previously ascertained, and dependent upon the quality of the coal under operation, and after being sufficiently mixed together, by raking or otherwise, may be carried away in boxes or baskets to the next process. The composition or artificial fuel now being in a plastic state, is, in the next place, to be put into a machine very similar in form, and in the mode of operation, to an ordinary clay or pug-mill, as used by brick-makers. The form of this apparatus is similar to a vat, say of six feet diameter at top, and eight or nine feet deep, and tapering downwards. This vat or chamber is to be of cast-iron, and surrounded with a jacket or casing, to act as a steam-chamber, in order to keep the composition under operation in a continuous heated state, and thus capable of being more efficiently worked. For this purpose a steam pipe is supplied to the lower part of the casing of the pug-mill, conveying the waste steam from the steam-engine employed to work the whole system of apparatus, and which steam is to be passed off at the upper part of the vessel, the condensed water escaping below. The interior of this pug-mill is somewhat peculiar in its construction, and consists of a central upright shaft driven from gearing below, in connection with a steam-engine or other moving power. Upon this shaft, of about six inches diameter at the lower end, and tapering upwards to about four inches, are placed several pairs of arms or agitators, say about six pairs, about nine inches wide, and reaching to within about an inch of the inside of the mill at the top, and about six inches at the bottom, each alternate pair being set at right angles with the adjoining pair, and each arm placed at an angle of about 30 degrees from the plane of the bottom, so that, as the shaft revolves, these arms or agitators will act as continuous screws, and keep forcing or conducting the composition in the mill towards the bottom, simultaneously with the mixing and pugling process. A separate or independent arm is also fixed at the lower end of the shaft, and touching the bottom of the pug-mill. This arm is formed horizontally, and its outer end forces the composition or fuel in a continuous stream or course, out of an aperture or mouth-piece formed at the bottom of the mill. This aperture or trough may be shaped in any way, being open at the top, and having the sides and bottom square, or as to shape of form the plastic composition as it is being forced from the mill. Masses of this compound are now to be taken from the opening at the bottom of the pug-mill, and whilst in a heated state, to be thrown or cast into square boxes or frames, the depth of an ordinary brick, when the plastic material will flatten as it cools, and spread itself evenly until it is confined by the sides of the frame; these frames may be large enough to contain a sufficient quantity to form 100 bricks or cakes of fuel. When the composition is sufficiently cooled, but not allowed to harden, it may be cut into masses or bricks, by means of a cylinder having a series of rotary cutters placed thereon, at given distances apart, and projecting from the cylinder as to pass through the entire depth of the cake of fuel in the frame. This cylinder, or series of cutters, is to be passed across the composition in the frame lengthwise, and will thus cut up the fuel into lengths; and a similar series of rotary cutters must be passed over the frames crosswise, and with these form or cut the fuel into shingle squares or bricks. The frames must be well maintained with a strong solution of alkali or lime, and the cutters and agitators must also be well supplied with a similar solution from a continuous brush above, so that all sides of the bricks or cakes of fuel shall be coated with lime, which will prevent their adhering to each other when packed closely together for use. The hardness of the fuel may be varied, and its capability of withstanding the effects of different climates may be modified by a greater or lesser proportion of the pitch, or other auxiliary materials.

Thirdly, "I claim as my invention the manufacture of artificial fuel, firstly, by bringing all natural coals to one uniform standard of combustible power or effect by artificial means—that is, by adding such proportions of coke, resin, and naphthalene, with pitch, or inferior coals, as will equalize or counterbalance the combustible strength of the best coals known or found in England and Wales; and, secondly, the application and employment of the machinery or apparatus herein described for the purpose of preparing, mixing, and conveying or shaping such artificial fuel into convenient portions, shapes, or bricks, or cakes."

REGULATING THE FLOW OF GASEOUS FLUIDS.

William Newton, civil engineer, 61, Chancery-lane, Middlesex, for certain improvements in regulating the flow of air and gaseous fluids, August 23.—These improvements consist in a "peculiar construction of apparatus, in which, upon the slightest increase of pressure from the air or gas which passes through the apparatus, the flow of the air or gas is restricted and regulated in a self-manner, until the excess pressure has ceased." The working parts of the apparatus are contained within an outside metal casing, which is supplied with a movable lid or cover. An annular movable bell-shaped vessel is placed in the interior of the metal casing, covering an aperture by which the gas or air enters the bell-shaped vessel, and through which it then escapes in regulated by means of the conical end of a hollow tube, which is supported by means of a metal rod or chain from the inside of the bell-shaped vessel. The aperture for the admission of the gas or air is formed at the upper extremity end of a metal cylinder, which is supported by an annular chamber or gallery, and where once placed in its proper position it remains stationary, and is prevented from moving laterally, or out of its position, by small lugs. The aperture is supplied with water from above, by means of the lid or cover, and its level inside is even by means of a glass tube outside. All the different parts of the apparatus, that are to be held with water are made to communicate with each other; and when the apparatus requires emptying, the water is allowed to flow out through an aperture in which there is a screw tap. The bell-shaped vessel is supported by rods or chains from the roof of the house, and the weight of the vessel, together with the weight of the water contained therein, is counterbalanced by weights at the opposite ends of the levers. Gaseous air flows into the apparatus from a supply-pipe, and passes up our annular passage into the upper part of the bell-shaped vessel, whence it passes down another annular passage, and finally escapes from the apparatus through a pipe. If the pressure of the air or gas into the apparatus is too great for the compensation, then it presses on the surface of the water, and against the conical end of the tube, thereby causing the latter to rise and draw the conical end of the hollow tube up into the aperture, and against the same, and cut off or prevent a quantity of gas to enter. When, by the loss of gas from the apparatus, the equilibrium is proper pressure is restored, then the conical end sinks again, and allows the conical end of the tube to descend also from the aperture, and permits the gas to enter.

Claim.—"I claim, first, the peculiar arrangements of apparatus herein shown and described, or any modification thereof; and, secondly, any apparatus for regulating the flow of air or gas, in which such regulation is effected by means of a conical plug, or the conical end of a tube, either hollow or solid, rising into the aperture through which the gas passes, and thereby closing, or partially closing, the same, and preventing the air or gas from passing, as above described."

IMPROVED STEAM-BOILER.

Edward Hall, civil engineer, Dartford, Kent, for an improved steam-boiler, July 11.—The present invention consists in adding one or two side tubes to an ordinary tubular boiler, so as to extend the heating-surface, and produce the effects of a larger boiler, without augmenting the space ordinarily occupied by one of smaller size. These external, or, as they are called, "feed-heating tubes," are placed in the side flue or flues of an ordinary cylindrical tube boiler, and are connected to the boiler as well as to its lower fire tubes, and the water made to circulate through them, as afterwards explained. The patentee states that, in carrying this improvement into effect, he does not find it necessary to confine himself to any particular dimension of boiler, or number of tubes, or attachment of them to one another; but by preference makes each of the two feed-heating tubes of the same size as the lower tubes, and about the same length. "In their construction I prefer fixing each of the two feed-heating tubes in the boiler at both ends, making them an integral part of the same; then connecting these tubes to the lower tubes by a flanged neck towards each end, which are secured together with screw bolts." He does not claim the use of the feed-heating tubes in the flues of boilers generally, as they are known to have been used before; but he claims their application to cylindrical boilers with tubes below them in the fire, as now, that is, feed-heating tubes connected with the tubes beneath cylindrical boilers, and interposed between them and the boiler, without the feed water which passes through them being allowed to mix with the water of the lower tubes in its passage into the boiler. It is in such application and arrangement that he grounds his patent "for an improved steam-boiler," which having within itself the means of heating its feed water approaching to or exceeding the point of ebullition, is productive of very considerable economy in the fuel necessary for generating a given quantity of steam, compared with boilers without such an appendage.

ON CHANGES IN THE INTERNAL STRUCTURE OF IRON.

In the *Mining Journal*, of the 6th August, we published entire Mr. Charles Hood's able paper "On some Peculiar Changes in the Internal Structure of Iron," independent of, and subsequent to, the several Processes of its Manufacture, which was read before the Institution of Civil Engineers on the 21st June, and we now lay before our readers the discussion that took place between the members of the institution after its reading.

Mr. MORLAND had frequently noticed that pins for chains and pump-ropes, although made of the best iron, would, if subjected to concussion, after a certain time, break suddenly, and that the fracture would exhibit a large crystalline texture. This was also frequently observed in the broken axes of road carriages, although they were generally made of iron of the finest quality.—Mr. K. WOODS had observed the crystalline fracture in all the broken axes on railways which he had seen.—Mr. HOOD exhibited some specimens of broken axes, all of which showed a large crystalline fracture; he believed that the iron from which the majority of them had been made was of the best quality, and in the parts not immediately subjected to concussion the fracture was quite different. One of them had been in use only three months, and had become so brittle, that, on attempting to break it, it jerked off at the shoulder of the journal, although an incision was made all round at the spot where it was intended to be broken.—Mr. YOUNG would account for the tendency of the axes to break at the journal, by that part being subjected, during the process of forging, to more hammering than the body.—Mr. HOOD agreed that such might be the case, but he conceived that it was more probably produced by cold hammering. He had taken a sample from the body of a broken crank axle, from the Great Junction Railway, the iron of which was evidently of the best quality, but at the point of fracture, which was certainly at that part where it had been most hammered, the fracture presented a large crystalline texture. A large number, which had been in store for more than a century at Woolwich Dockyard, and was supposed to be made of extremely good iron, had been recently tested as an experiment, and had broken instantly with a comparatively small strain; the fracture presented very large crystals; in this case, he believed, the length of time which the anchor had remained in the same position had produced the same effects as magnetism and vibration.—Mr. LEWIS stated, that at the gas works under his direction, wrought-iron fire bars, although more expensive, were generally preferred; a pile of water was kept beneath them, the steam from which would speedily cause them to become magnetic; he had frequently seen these bars, when thrown down, break in three pieces with a large crystalline fracture.—Mr. MITCHELL had frequently seen in manufacturing, that when the smiths had forged parts of engine work, which, from their intricate forms, had required to be much hammered, the ends were jerked off while they were being worked upon. He instanced particularly the side-rods of the engine for the Lord Melville steamer, of which, while shutting up the middle, one of the ends of each rod was jerked off, and presented large crystals in the fracture; being well assured of the good quality of the iron in the rods, he had the same rods welded on again, and although the circumstance had occurred twenty years since, they were still at work, and had not shown any symptom of weakness. It must be evident that, in this case, the fracture and the crystalline appearance of the metal must have been produced by the cold hammering in which it had been subjected.—Mr. YOUNG agreed with Mr. Hood in the fact of a change taking place in the texture of the iron, but he was of opinion that it more frequently occurred during than after manipulation; he alluded more particularly to railway axes, in which he believed the injury to be done by the cold hammering, or planishing, after they were forged; he had frequently seen one end of an axle fall off while the other was being hammered; in all such cases, and in those of accidental breakage, such as recently occurred on the Great Eastern Railway, and in other places, the fracture always presented a crystalline appearance. He then exhibited and described a railway axle, which he stated to possess the combined advantages of rigidity and toughness, and avoiding actively the crystallization of the iron during the process of manufacture; this he described to be effected by maintaining the axle in a hollow state during the whole operation of hammering, thereby avoiding the vibration and concussion, to which cause he attributed the crystallization of the iron in solid axes, being of opinion that the repeated blows of the hammer on a solid mass, particularly during the process of "planishing," were the chief, if not the only, cause of the ductile quality of the iron being destroyed. He stated that he had made numerous experiments for the purpose of ascertaining this fact, and in every instance, when the axle was tested, the iron presented the same crystalline fracture, although the bars, previous to their being welded together, were of the most fibrous quality; but if the axle was not quite sound, and the bars not perfectly welded to the center, then the fracture was somewhat fibrous, the axle being partially hollow, and thereby avoiding the vibration to a considerable extent. This fact suggested to him the propriety of keeping the axle hollow; and the mode of manufacture he described to be by taking two dish half-cylindrical bars of iron, of the entire length of the axle, putting them together and welding them under a hammer in swages, by which means the particles are not driven asunder by the heavy blows, and the axle or forged lengthened, but are driven together and towards the center. The axle produced by this means, he stated to be as perfectly ductile as the bars in the first instance. A further advantage, he stated to consist, in being able to make half the whole length of the axle at one heat, thereby avoiding, in a considerable extent, the danger of burning the iron by repeatedly heating it; the iron in the axle he described as being an uniform cylinder in thickness, and, consequently, requiring an uniform heat, whereas the external bars of a forged bar for a common axle were liable to be burnt before the center was heated to a welding state. The diameter of the hollow axle was increased from 14 inches (the general size of a solid axle) to four inches, in order to give a proper degree of rigidity, but without increasing the weight. The usual proof to which solid railway axes were subjected, was by allowing a weight of six cwt. to fall upon them from a height of six feet; with that force they were frequently broken at the second blow, and sometimes by the first—as had been the case of the hollow axle, by letting fall upon them a weight of two cwt. from a height of fifteen feet, without breaking one of them.—Mr. STEWART expressed the obligation of the institution to Mr. Hood for bringing before the meeting such an interesting communication, upon a subject, which it is of the utmost importance to railways, should be carefully examined. It was to be regretted that the late period of the meeting had prevented the attendance of those members whose attention had been more particularly directed to railways; but on the evening of the subject next session, upon the production of the report upon the proposed experiments, proposed by Mr. Hood, a very useful discussion might be anticipated.

MR. G. CANNON.—One of the immense hydraulic cylinders used for raising vessels by the Screw Dock Company of New York was cast on Thursday, at the North Works of Messrs. Shillman and Co. The cylinder was twenty-two feet long, it bore thirteen inches, thickness of shell nine inches, iron required twenty-two tons—being by far the largest casting ever made in this country. The iron was melted by three cupola furnaces, commenced melting 10 o'clock 6 minutes, iron began to run 10-30, mould started at 11-12, opened sluices for waste metal at 11-35, time consumed for preparing the mould about four weeks. The production of this immense cylinder was cast in Scotland, and proved defective, and the company determined to give their cylinder a chance.—*American paper.*

ON IRON SHEATHING, BROAD-HEADED NAILS, AND INNER SHEATHING FOR SHIPS.

BY J. J. WILKINSON, ESQ.

(From the Transactions of the Institution of Civil Engineers.)

These three papers complete the subject which the author commenced in the year 1841, and continued during the present session. The first treats of the use of beaten iron and iron nails, even in very ancient vessels, their corrosion, and consequent abandonment; the attempted introduction of rolled iron for the purpose of sheathing. It touches lightly on the construction of iron vessels, and on various attempts to protect them, which experience has now shown to be unnecessary, as the first iron steamer, built by Mr. A. Muir, in 1821, at the Horsley Iron-Works, has been in constant use on the river Seine up to the present period, without showing any symptoms of oxidation, although the only precautions taken have been to apply a coat of pitch as often as to a wooden vessel. Extracts are then made from Mr. Grantham's *Treatise on Iron as a Material for Ship-building*. A list is then given of the patents connected with iron sheathing, and the various modes of preserving it from corrosion, alluding particularly to the valuable labours of Mr. Mallet (of Dublin) on this subject, in the archives of the institution. The next division treats of metallic sheathing, or a coating of metallic oxide, formed by driving broad-headed nails nearly in contact with each other into the sheathing board; this process is called *filig*. The nails used for this purpose by the Romans were of the same form as those of the present day. There are authentic records of "filig" being generally in use in this country in 1660, but it is conjectured that it was practiced much antecedent to that time, and it has continued in use until recently in Swedish and Danish ships. This mode of protecting the piles of harbours and piers from the ravages of the worm is then treated of, and examples are given of its success in various situations. The third division treats of the inner coating or sheathing, which it has been found necessary to use, independently of the external metallic sheathing. It is stated, that some of the stronger and more adhesive kinds of inner sheathing have proved mainly instrumental in preserving vessels from sinking, when the outer sheathing has failed or been destroyed. Hair is noticed as among the earliest materials used for inner sheathing; it was usually applied in a loose state, and fixed by pitch or other resinous substances; it was subsequently woven into and used as a cloth—the course part of flax was in the time of the Romans braided and driven between the seams of their galleys. A vessel was discovered in the Mediterranean Sea (between the years 1450 and 1650), in a depth of water of twelve fathoms, where it is supposed to have lain for nearly 1400 years; the deck and sides were covered with paper, linen, and leather plates. In all the oldest vessels which have been discovered the hair was perfectly fresh, although the timber was in a state of decay, and it is stated that the worm never penetrates through an inner sheathing of hair. In the year 1761, when copper sheathing was introduced, experiments were tried upon different kinds of paper for lining, and after trying white lead and other substances, thick brown paper dipped in tar was found to be the best. A list is then given of the patents for different kinds of "filig" now used for inner sheathing, noticing particularly that of Messrs. Horrold and Co., which appears to be that which is most generally approved. Cocoa-oil fibre and cork, and many other substances, which have been tried at different times, are noticed, and the paper concludes with a copious list of the experiments upon the subject, which the author has compiled from various sources.

* See *Mining Journal* of the 9th of July last.

THE "GREAT BRITAIN" IRON STEAM-SHIP.

The *Great Britain*, or, as she is often called, the *Mammoth*, is progressing in a most satisfactory manner, and it is expected, will be ready to float out of dock in about a month's time, and will be fitted out and ready for sea early in the spring. The following particulars respecting this noble ship cannot fail being of considerable interest.—Her length is 324 feet aloft, which is nearly 100 feet longer than the longest line-of-battle ship in our service; with the exception of her deck and cabins, she is constructed entirely of iron. Her extreme breadth is fifty-one feet—the depth of her hold thirty-two feet—and her registered tonnage 3200, which far exceeds the registered tonnage of any two steam-ships in the world. She has four decks, three of timber, and the fourth, which is the lowest, of iron, this latter being appropriated to the reception of cargo. The uppermost deck will be, with the exception of a small break in the fore-cabin, flush from end to end, and without elevation or bulging of any kind, so that there will be nothing above deck, with the exception of her masts and funnel, to offer resistance to a head wind. The intermediate decks are exclusively for the use of the passengers and the officers of the ship; they will form four spacious saloons (which, together, will make a length of dining-room of 330 feet), two commodious and elegant ladies' saloons, or cabins, and 180 state rooms, each of which will contain two sleeping berths of more than the ordinary dimensions. From this it will be seen that the *Great Britain* will afford ample accommodation to 360 passengers, providing a separate bed for each, without making up a single sofa bed in either of the saloons, and this, too, without trenching on the accommodations provided for her officers, crew, stewards' department, &c. The principal saloon will be most extensive and magnificent; its length from end to end will measure 108 feet, its width will be 32 feet, and its height 8 ft. 3 in. Some slight idea of the bulk of this gigantic vessel may be formed, when it is stated, that in addition to the vast space before described as appropriated to passengers, &c., and that required for the erection of her boilers, engines, &c., she will have room for 1000 tons of coal, and 1200 tons of merchandise. The *Great Britain* will be fitted with four engines of 250 horse power each—in all 1000-horse power. She will have three funnels, capable of containing 300 tons of water, and these will be heated by twenty-four different fires. In her construction there have been used not less than 1400 tons of iron, in addition to the large quantity of timber required for her decks and cabin.

Thus far of the construction of the hull, &c. The great experiment which this gigantic steamer is destined to solve, is one of vast importance in maritime science. She will not be propelled by the ordinary mode, with paddles, but by the newly-invented screw propeller, which has been patented by Mr. Smith, of London, and the successful application of which to the *Archimedes* steamer has created a feeling of confidence that it is destined to effect a complete revolution in the practice of steam navigation. With a view to a thorough and searching investigation of the powers of the screw, and its applicability to the purposes for which their new vessel is designed, the Great Western Steam-ship Company hired the *Archimedes* for several months, and, in the course of the autumn of 1841, they made a series of experiments with screws of various forms and sizes, the result of which was that it was found that equal velocity and an great power could be obtained with the screw as with the use of paddles, and that the screw conferred a great advantage on vessels propelled by it under adverse circumstances, more particularly in the case of strong head winds. The machinery of the screw is likewise far simpler than that of the paddles, and it is by no means so great an incumbrance to the vessel. Under these circumstances it was resolved by the company not to use the paddle, but to adopt the screw with such improvements as had been suggested in the course of the various experiments.

The screw with which the *Great Britain* will be fitted is sixteen feet in diameter, and it will be placed under the stern, between the stern-post and the run of the ship, which situation is selected, as placing it out of the reach of accidents, in which, in many others, it would be liable. According to the calculations of men of scientific skill and experience, the substitution of the screw propeller for paddle-wheels will reduce the ship of fully 100 tons of top-weight, while it will, at the same time, admit of the boilers and engines being adjusted in that part of the vessel best adapted for their reception, and where they can best act as permanent ballast. The *Great Britain* will be fitted with six masts. Of these the mainmast shall be rigged with top-mast and yards. The other five will carry a single spar and all sail each. The height of the mainmast will be nearly five feet, and the masts comprising the several sails will be sufficient to cover an area of three quarters of an acre. It is intended to fit up the saloons, &c., with a degree of elegance becoming a ship of such an extraordinary character, and the whole of her fittings will be such as to insure the comfort of the passengers, and afford and beautify the ship.

THE "PRINCE OF WALES" IRON STEAM-SHIP.—On Monday this fine ship accomplished the first trip on her newly-appointed station, from Cork to Liverpool, in the short space of 22 hours and 10 minutes. The *Prince* is a very superior vessel, and reflects great credit on the builders—Messrs. Todd and McGregor, of Glasgow—who have succeeded in producing a worthy match to the *Princess Royal*. The latest improvements in iron ship-building, as well as in the construction of her engines, have been introduced, and no expense has been spared to render her, which she is generally acknowledged to be, at once speedy, comfortable, and safe.

REVENUE OF STEAM NAVIGATION IN FRANCE.—Our may form an idea (says the *Commercy*) of the extension lately assumed by the navigation of the Government steam-packets from the following demand of coal for their annual supply. On the 7th of October next, at one o'clock in the afternoon, the Director General of the Post-office will present in his hotel to the adjutants of 38,500,000 kilograms of coal, for the use of the mail-packets, which are to be delivered as follows:—At Calcutta, 1,200,000; Madras, 1,100,000; Malta, 3,200,000; Smyrna, 600,000; Athens, 1,200,000; Constantinople, 3,000,000; Alexandria, 5,000,000. Total, 28,500,000.

An edition of Dr. Ure's *Dictionary of the Arts and Sciences* is in course of periodical publication in the United States, the subscription for which is five dollars—its next issue was eleven.

PROCEEDINGS OF PUBLIC COMPANIES.

THE BANK OF ENGLAND.

At the half-yearly meeting of the proprietors of Bank Stock, held in the Bank parlour, on the 15th instant, the GOVERNOR (W. Cotton, Esq.) said the court of directors having considered the state of the bank accounts, were of opinion that a dividend of 3½ per cent. interest and profit for the half-year ending the 10th of October next, deducting therefrom 7d. in the 1l. for the discharge of the income tax, should be declared. The paying of the income tax by the bank would diminish the "rest" in the extent of 3990l. In reply to a proprietor, he said the amount of the "rest," after deducting the amount required for the income tax, would stand at 2,963,268l.; in April it was 2,869,268l., and the amount deducted was 9940l.—Mr. WOLLASTON inquired of the governor whether, if the court refrained for the while from declaring a dividend, the income tax could then be extracted from the profits? and the GOVERNOR replied in the affirmative. There was no complaint from the payment of the tax, which had already been assessed to them.—Mr. THOMPSON wished to ask a question of the governor; it was whether the directors expected payment for the trouble occasioned them and their employees in the calculation of the duty payable in the 3 per Centa, and 3½ per Centa, stocks?—The GOVERNOR replied, that they did expect to be remunerated in the character of assessors and collectors, *pro rata*, according to the clause of the Act. Having been obliged for the last few months, at much trouble and inconvenience, to give great attention to the various enactments contained in the bill, he considered himself competent to judge.—Mr. FIELDEN said, the directors could not hope for remuneration as commissioners; if they got it, it must be in the other character of assessors or collectors.—The GOVERNOR moved the declaration of a dividend of 3½ per cent., deducting the 7d. in the 1l. income tax.—Mr. WOLLASTON moved an amendment, that the words "deducting the 7d. in the 1l. income tax," be expunged. The amendment having been seconded, it was put by the governor, and negatived by a large majority; the original resolution was then carried with only five dissentients.—It was announced that on Tuesday, the 11th proximo, the warrants were deliverable, and the court adjourned.

NORWICH UNION LIFE OFFICE.

A numerous body of the assurers in the above society met at their office, in Norwich, yesterday week, to receive the report of the directors, and to take into consideration their recommendation on the propriety of declaring a bonus on all policies effected previous to June, 1841.

K. T. BOOTH, Esq., in the chair.

S. BIGNOLD, Esq. (the secretary) having read the advertisement convening the meeting, the CHAIRMAN said that he had much pleasure in meeting so large a number of the proprietors on the present occasion; he would state to the meeting that some circumstances, which it had been out of their power to control, had been the reason of their not having been called together somewhat earlier, but he could assure them the time had been well employed in making the accounts more complete. He was happy to think a few circumstances had occurred which had created a more friendly feeling than had existed among them on former occasions, and the prosperity of the establishment had greatly increased; he hoped, after the report had been read, that all angry feeling which had previously existed against this office would cease.—That whatever might have been the feelings, or however high might have been the words used against the office on any former occasion, they would now be buried in oblivion, and that every one of them would endeavor, by every possible means in their power, to promote the interest of the establishment. In conformity with a resolution passed in January last, they had now placed before them a full and clear statement of the affairs of the company, with the view of declaring what shall be the amount of the bonus; he would now call on the secretary to read the report, after which he would be glad to answer any question that might be addressed to him.

The SECRETARY, after reading the minutes of the former meeting, read the following REPORT.

The committee of directors have much satisfaction on meeting the assured this day, enabled as they now are to lay before them the result of the transactions of the society for the year, from June, 1840, to June, 1841, with the balance-sheet at the latter period. They regret that some little delay has taken place in calling the present meeting, which must be attributed to the anxious desire of all concerned that the accounts should be fully examined, and the calculations made on the most accurate data; but they have now every confidence in stating that these objects have been accomplished, and it is with very high gratification to announce to the meeting, that the surplus resulting from the operations of the society during the year, from June, 1840, to June, 1841, has considerably exceeded the average of the previous four years. The accounts for that year have been carefully investigated by Mr. James, who reports that he has pursued the same course of examination which he had previously done. Upon this subject he states:—"The policies and premiums have been examined by Mr. Galloway upon the same basis, and the same test has been applied to these several valuations as heretofore adopted, and fully explained in my report of December last. The debts and liabilities have been most carefully ascertained." On the subject of these accounts, showing a balance or profit of 29,256l. 10s. 7d. upon the transactions of that year, Mr. James observes:—"This profit for the year 1840, 1841, 1842, 1843, 1844, being more than the average of the previous four years, it may, perhaps, be as well to offer some remarks in explanation. When I stated in January last that the probable year's working, or profit, of your society to the 30th June, 1841, would be equal to the average of the previous four years, I was well aware that there were circumstances in favour of the year above alluded to, to insure a full average of the previous four. The interest on the surplus, 20th June, 1841, would itself form a large increase, the interest rate of expenses of management would be in full operation for that year, whereas it had been only partially felt in the previous four; and, finally, I was sensible that the year's mortality had been most favourable, and although running against the society as regards the annuities and endowment contracts, the loss upon that class of insurances would be much overbalanced by the gain upon whole life and short periods. These three matters, therefore, would fully account for the year's profit, 20th June, 1841, to 30th June, 1841, being more than the average of the four years 1836 to 1840."

The year's profit here referred to by Mr. James relates the surplus assets at the 30th June, 1841, to 183,612l. 10s. 7d., and on laying the details of the balance-sheet before the committee, he remarks:—"I have no hesitation in reporting that, in my judgment, the several valuations and calculations forming the items in such balance-sheet may be considered as truly made, and with perfect safety in reference to the future. The debts and other liabilities may also be relied upon as correct and true; the reserve for future management or expenses in realization of the premiums is taken with perfect safety, as regards the probable future charges; and upon the whole I feel satisfied that the surplus, as above set forth, may be considered a correct and safe surplus, and applicable for division amongst the assured."

The committee of directors have the most implicit reliance upon the judgment of Mr. Galloway, by whom the several valuations of the policies and premiums have been made; supported, as those valuations are, by the calculations of Mr. Morgan, the society's actuary, as well as upon Mr. James, by whom the accounts have been examined and closed, and the results as above set forth drawn out; and they have, therefore, no hesitation in recommending the declaration of a bonus. In order that such declaration may be made on perfect and true data, a correct list of premiums has been drawn out upon which the bonus should attach, amounting to the sum of 2,241,766l. 15s. 11d. An account or valuation has also been prepared to ascertain the bonus which first fifth of the above-mentioned surplus of 183,612l. 10s. 7d. will give, from which it appears that a bonus of 18 per cent. would require, in present money, 141,524l. 15s. 11d.—being equal to 294,752l. 30s. 7d. in reversion; the latter being, therefore, the amount which would be actually attached to the policies. The declaration of this bonus would leave a surplus of 142,088l. 15s. 11d. beyond the one-fifth (38,702l. 6s. 11d.) reserved in conformity with the Deed of Settlement—making together the sum of 180,790l. 11s. 4d. undistributed and unappropriated. The above calculations are made upon the several policies in existence in June, 1841, although part of those policies have terminated by death since that period.

After mature consideration given to the subject, the committee feel that the holders of this class of policies are justly entitled to share in the surplus, and they, therefore, recommend this meeting to declare a bonus accordingly:—viz., 18 per cent. on the total amount of premiums received upon all policies for the whole period of life, which was in existence on the 30th of June, 1841. The members of the society will bear in mind that, in the declaration of any bonus at this time, when the society has existed upwards of thirty-three years, the number of years, and the great amount of premium over which that bonus is spread, must have the effect of reducing the nominal per centage. The senior members, however, will find that their bonuses, extending back to the date of every policy, will yield them an advantage fully commensurate with a higher rate of per centage, attaching to a more limited period of time.

The committee cannot close this report without referring to that part of their last report (January 1840, 1841), which alludes to the fact, that all who enter this society under the age of forty-five are insured at premiums considerably lower than those taken by most other offices, whilst from forty-five to sixty this society only gradually approaches the rates of those offices. Had the premiums of other great societies been adopted by this, and the difference set apart to accumulate at interest, for the purpose of increasing the bonus, the magnitude of those bonuses to this institution would have been greatly enhanced, since the funds so accumulated, if not distributed, would now have amounted to many hundred thousand pounds. Under these circumstances the committee feel assured that the members may fairly urge upon their representatives the propriety of joining this institution, a home strength and ability must increase with its growth.

The cash account to June, 1841, was then read. Mr. AM. FAREBROTHER said, in conformity with the wish expressed by the chairman, he would ask one or two questions; but he wished it to be distinctly understood, he was not with the view of disturbing the harmony of the meeting. He was sure the answers which he should receive would satisfy all present. He would ask Mr. James if the accounts now made out and submitted to the proprietors, were based on those by him in 1836?—Mr. JAMES (the accountant) replied they were. The balance had been brought forward, which had formed the data upon which they had acted.—Mr. AM. FAREBROTHER.—Is 1836 a long discussion took place in reference to the allowance to be given to Mr. S. Bignold, as secretary. The chairman had recommended that it should then be 1841, a year, but some proprietors present thought it should be 1840, a year, taking into consideration his father's services, as well as his family's claims. He wished to ask Mr. James whether, in making up the accounts, he had given credit to Mr. Bignold for 1840, or 1841?—Mr. JAMES replied, that since 1836 Mr. Bignold had only drawn for 1840, a year on account of salary, and 1841, more for office, or paper, and expenses.—Mr. AM. FAREBROTHER observed, that on that occasion he had taken the liberty of asking Mr. Bignold to waive the discussion

of the question, and leave it open for a future period, so it would then tend to disturb the harmony of the meeting.—Here a long and friendly discussion took place between various parties in the room; and it was evident the general feeling was in favour of increasing Mr. Bignold's salary to 2500l. a year; this was confirmed by the following resolution having been put and carried without one dissenting voice.

The CHAIRMAN said a resolution had been moved and seconded, which he would put to the meeting:—"That it appearing by the statement of Mr. James, in answer to the question of Mr. AM. FAREBROTHER, that the secretary has only drawn for the sum of 1800l. per annum since December, 1839, instead of 2500l. on the premiums, to which he is entitled under the Deed of Settlement, which was confirmed at the last general meeting, this meeting, taking into consideration all the circumstances of the surrender by him of his vested interest under the deed, recommend the committee of directors to place his remuneration finally and definitively at the sum of 2500l. per annum from November, 1839."—This was unanimously adopted.

The SECRETARY said he could not sufficiently express his thanks to those gentlemen who had put so liberal a construction upon his conduct. He begged them to look at the state of the society at the present moment. He felt it would bear a comparison with nine-tenths of the societies in London. He was grateful for the expressions which had fallen from Mr. FAREBROTHER.

The Rev. Mr. BAILEY (Vicar of Stoke Holycross) then rose to move the receiving of the report. He was glad to think the society had increased in public confidence, and was receiving the public support. He hoped the proprietors would exert themselves in favour of the establishment; if they did it would rise still higher, not only at home, but in the opinion of the whole world. He would now move:—"That the highly satisfactory report submitted by the directors to this general meeting be received, adopted, and printed, for circulation amongst the members of the society."—Mr. LOCKWOOD, in seconding the resolution, said, he gladly responded to everything which had fallen from the reverend gentleman.—Mr. T. BIGNOLD would inform the meeting, that the gentlemen who had seconded the resolution for receiving the report was the father of the society—he standing No. 1 survivor in the books.

Mr. R. J. H. HARTY (one of the trustees of the society) begged leave to move that the bonus recommended in the report be immediately carried into effect. After the close examination which the accounts had gone through, and the clear exposition of that day, they could not hesitate carrying it out. He would therefore move:—"That, pursuant to the recommendation of the directors, a bonus of 10 per cent. be now declared on the amount of premium received, in respect of all policies in existence on June 30, 1841, and effected for the whole duration of life."—Mr. R. STEWART having seconded the resolution, the CHAIRMAN put it to the meeting, when it was adopted.—Here a question arose relative to the most equitable mode of dividing the bonus, which was explained by the directors, who said, they had felt the force of it themselves; in consequence, they had taken the highest legal opinion on the question, which were in favour of the mode now adopted by them.

Mr. AM. FAREBROTHER remarked, they had now their most pleasing duty to perform; it was an expression of their gratitude to the directors for the able manner they had carried themselves through one of the most severe ordeals men ever passed. He would, therefore, move:—"That this meeting desire to express their unqualified confidence in the integrity and judgment of the directors, and in their full determination to watch over the future interests of the society, and also to offer to the chairman their best thanks for his valuable services this day."—Mr. LEVY (of Birmingham) had great pleasure in seconding the resolution, having been one of those who had been appointed to examine into the conduct of the directors. He felt that the thanks of the proprietors were eminently due to the chairman and directors for the arduous duties they had performed while in office; they had carried out all that had been recommended to them by the examiners, and he (Mr. Lloyd) had travelled several hundred miles to speak to the point at this meeting, which he did with the highest satisfaction.—It was then carried with acclamation.—The CHAIRMAN could assure the meeting that the conduct which had received such expressions of approbation this day would continue to be pursued by the directors, and he hoped at their next meeting they would be found still equally deserving of the confidence of the proprietors.

Those who have regularly attended the general meetings of this society, which have so frequently taken place of late years, must have marked the changed tone on this occasion. At their first assemblage, in 1837, great distrust was manifested, doubt and anxiety was marked on many a brow, and the question on their mind was, are our families to be provided for at our death, or not? The number at that period who used to assemble from far and near did not lessen the anxiety. London, Liverpool, Manchester, Birmingham, and Bristol, sent their inhabitants to learn the worst of their fears. After passing a most searching examination of their affairs, the proprietors have now reaped another harvest, by dividing nearly a quarter of a million of money among them (this being their fourth bonus upon their paid up capital), which, but for the unimpaired integrity, clear foresight, and patient perseverance of the officers of the establishment, would have fallen a wreck to the foolish imbecility of a few weak statisticians.]

MANCHESTER AND BIRMINGHAM RAILWAY COMPANY.

At a special meeting, held at Manchester, on Friday, the 9th inst., to receive the report of the committee appointed at the last half-yearly meeting of the proprietors, on the subject of the proposed junction with the Leeds Railway, and of sanctioning, or otherwise, an application to Parliament to effect such junction, by request of the CHAIRMAN (H. Newbery, Esq.), Mr. R. BARBOUR (chairman of the committee) introduced the matter to the meeting, by stating that the committee had unanimously come to the following resolution, which he would submit to the meeting:—"That after a full consideration of all the existing circumstances connected with the Manchester and Leeds Railway, it is the decided opinion of this committee, that it is for the interests of this company to form the proposed junction with the Manchester and Leeds Extension Line; and the committee strongly recommend that the proprietors should, at the special general meeting to be held on Friday next, give their consent, with full powers to the directors to apply to Parliament at the earliest period for effecting the junction, and in such manner as shall appear to them most advisable."—This resolution was, after some conversation, carried unanimously, and the thanks of the meeting having been voted to the chairman, the meeting broke up.

ULSTER RAILWAY COMPANY.

At the half-yearly meeting, held at the station, Ulster, on the 9th instant, the directors' report was submitted, which showed that the total receipts from the traffic was 19,240l., and the expenses 3311l.—leaving a balance of 15,929l. net profit for the half-year. Out of this sum the directors recommended that a dividend of 9s. per share should be declared, which would leave 10l. to be added to the reserve fund. In order to insure having a supply of the best coals, the directors had determined to manufacture their own, and they looked forward to the result, to prove that in this matter they had exercised a sound discretion. The total amount expended upon the works of the line, and in providing the working stock, was 314,392l., and, in order to meet further demands, an additional 10,000l. would still be required.—The report was unanimously adopted, and a series of bye-laws proposed, which was, after a little discussion, also carried. A dividend of 9s. per share was then declared, and the thanks of the proprietors were most especially voted to J. Goodwin, Esq., the engineer and manager, for the arduous and efficient manner in which he had discharged his duties.—Alexander Hunter, John Hardy, W. J. Campbell Allen, Andrew Millican, Jonathan Richardson, John Thomson, and James Goodland, Esqs., were declared to be duly elected directors of the company.—A vote of thanks having been passed to Mr. Goodland, the chairman, the meeting adjourned.

FUGGIE REMAINS AT LYNN.—At the meeting of the British Association Mr. Hambro read a notice of the small footstep in the new red sandstone at Lynn, in Cheshire. His object in doing so, he said, was merely to record another instance of those extraordinary impressions of footmarks which had lately excited so much interest among geologists. After describing minutely the Lynn quarry, in which the footprints of the cheiratherium are found, he entered into some curious speculations regarding the nature of that huge inhabitant of the earlier ages of this world.

LANE ROPE FOR MINING PURPOSES.—A large rope, forwarded on Thursday last from Messrs. Collett, Clark, and Co.'s works, in Lodge Lane, appeared to attract considerable attention, whilst being conveyed through the streets, on its way to the place of shipment at the Duke's Dock, and various were the surmises as to its intended use. Though made up into the smallest possible compass, yet the coil was nearly thirty feet in circumference, and three feet in depth. The rope was 200 fathoms in length, made without a splice, and thirteen inches in circumference, and contained such a number of yarns, which, if singly extended, would have reached the distance of about 350 miles. It was made, we understood, for a mine on the midland counties, and intended to be used for lifting the pump-rod, often of great weight in such works; and, as no expense is ever spared by the proprietors of first-rate mines, the ropes used by them are always ordered to be made of the very best materials and workmanship. The rope now noticed cannot fail, in these particulars, to reflect the highest credit, as well on the manufacturers as the proprietors of the mine, exhibiting the skill and ingenuity of the former, and the liberality and enterprising spirit of the latter.—*Liverpool Standard.*—We believe that in Cornwall the copper ropes are as much as sixteen or seventeen inches in circumference.

fully, and lays him out the other side of his path. All this is effected by an immense shovel with a sliding bottom, at the end of an immense and complicated arm, worked by much ingenious and novel machinery. The inventor is now dead; the company had spent 30,000 dollars upon the invention before the first machine was made, and much more afterwards. The patent, which is now secured throughout Europe, is probably worth 1,000,000 dollars. An excavator complete costs about 6000 dollars, and will dig and load 1000 cubic yards of earth per day—equal to the labour of 150 men—cares nothing for cold or heat, rain or fair weather, but goes ahead, and makes its own business through all.

INSOLUBLE SALTS OF THE ALKALINE EARTHS DISSOLVED BY HYDROCHLORATE OF AMMONIA AND CHLORIDE OF SODIUM.—M. H. Wackerroder states that sulphate of barytes is quite insoluble, but that the sulphates of lime and strontia are soluble in solution of chloride of sodium; the latter, though slowly, yet completely, and it is entirely precipitable from solution by dilute sulphuric acid. Sulphate of lime dissolves very readily in solution of chloride of sodium, and cannot be precipitated by dilute sulphuric acid.

IMPORTANT IMPROVEMENT IN THE CONSTRUCTION OF RAILWAYS.—M. Marchal, a mechanician at Brussels, has manufactured blocks of metal rendered inoxidable, which are intended to be used instead of wood in the construction of railroads. They are said to be in every respect equal to wood, occupying the same surface, and having the same flexibility. They are so made that they will last ten times as long as wood; and the price is nearly the same.

PLYMOUTH AND EXETER RAILWAY.—A meeting of the committee of the proposed Plymouth and Exeter Railway was held on Wednesday, to receive the report of Mr. McNeil on the eligibility of the three separate lines of road already surveyed, when it was determined to call a public meeting of the shareholders, to take the matter into consideration. Yesterday a meeting of the shareholders took place at the Guildhall, T. Ogle, Esq., M.P., presided. It was to receive an abstract drawn up by the committee of directors from a report made by Mr. McNeil, on the three lines of road already surveyed between Plymouth and Exeter, and his opinion as to the eligibility of each, when it was determined that a committee selected from the present provisional directors should be formed to prepare this document for the press, and that it should be printed for publication previous to a public meeting, to take place at the time that may be appointed by the committee.—*West of England Conservative.*

EASTERN COUNTIES RAILWAY.—A special session was held at the Angel Inn, Kelvedon, on Saturday, the 3d inst., to take into consideration a complaint made by Lord Western against this company, for obstructing the carriage-way through Rowley Lane, situate in the above parish. After a very long hearing (during which a considerable number of witnesses were examined) the bench adjudged the company to pay a penalty of 400l.—viz., 20l. per day for twenty days during which the obstruction was proved to have existed. It is said that an appeal will be made against this decision.—*Ipswich Express.*

ATMOSPHERIC RAILWAY TO DALKEY.—We understand that the contract and agreement with Messrs. Samuda, Brothers, were sealed this day, by the Dublin and Kingstown Railway Company. Mr. Dargan is to have the execution of the earthwork, masonry, &c. The company themselves will provide and lay the rails, and supply the necessary carriages. Mr. Dargan's part of the work is expected to be completed within three months; and Messrs. Samuda expect to have the 100-horse power engine at work about that time. The laying of the pipes will then commence from Dalkey towards Kingstown, and each will be proved by the air-pump as the work proceeds. It is expected that everything will be ready for the conveyance of passengers between Kingstown and Dalkey by the 1st of May, and that, upon the opening of the summer season, the public will have the gratification of witnessing, at full work, within a few miles of the Irish metropolis, the first regular line of railway ever constructed upon the atmospheric principle.—*Dublin Mercantile Advertiser.*

ULSTER RAILWAY.—This railway was yesterday opened up to the terminus at Portadown. The trains had previously stopped about a mile short of that place.—*Northern Whig.*

RAILROADS ON THE CONTINENT.—The company which had undertaken the execution of the railroad from Warsaw to Vienna having declared its inability, from want of funds, to complete the enterprise, the Government of Poland has appointed a commission to report on the measures necessary for its completion, and has undertaken, in the meantime, to pay the interest of 4 per cent. which had been promised to the shareholders. A German paper states that a proposition has been made to the Porte for the construction of a railroad from Constantinople to Adrianople, and that it was well received; the ground, however, between the two places is so difficult, that the work, if undertaken at all, will be one of great time and expense.

LEIPZIG AND ALTENBURG RAILROAD.—The section of the Saxon railroad which runs between Leipzig and Altenburg was tried on the 5th inst. The distance, which is five and a half German miles, was performed from Leipzig to Altenburg in fifty-nine minutes, and back again in fifty-four minutes, including stoppages at the different stations. It is expected that it will be opened to the public by the next fall.

AMERICAN RAILROADS.—We learn from the *Reading Journal* (U. S.) that the engineers sent by the Emperor of Austria to examine the various lines in the United States, has fixed upon the Philadelphia and Reading Railroad as the best made in the union. The engineers of the various stations are busily engaged preparing drawings, &c., of the most important works for the use of the Austrian Government.

PHILADELPHIA AND READING RAILROAD.—The receipts on this line for May last amounted to 29,000 dollars, which is considered a very large amount, so the country was in a very depressed state, and but a few hundred tons of coal were carried during the month.

A JACK TAIL'S IDEA OF A LOCOMOTIVE.—"Why (says he), there's nothing more about it. Watch a ship now, with her masts bulging out, laying down to it just enough to show the tops of the masts, towing the spray from her bows, and lifting her head over the sea as if she stepped over 'em—there's something like life there. There's something noble about a horse—he steps as if he knew he was going, and proud of his duty, and able to do it. But the locomotive—look! that there engine comes lumbering along, crawling on his belly like a thumping long snake with a pipe in his mouth."

SHIP-BUILDING ON THE WARD.—At the sale of the stock in trade of Fisher, ship-building materials, and vessels on the stocks, at Mr. Robert Ross's, North Wharf, the prices realized clearly indicated better prospects for ship-builders, and the shipping interest generally, oak timber ranging from 4l. to 5l. 10s. per load—other kinds in proportion. A revival in this most extensive and leading branch of our local commerce and industry, so important to every class on both sides of the War, is exceedingly cheering.—*Northern Times.*

CONSUMPTION OF COAL IN FRANCE.—The consumption of coal in Paris, in the year 1839, was 500,000 hectolitres, which had increased to 1,542,763 in the year 1839.

which is far above the average of the preceding four years—such profit making the surplus assets on 30th June, 1841, to amount to 183,016l. 10s. 6d. We refer to the report for particulars of the proceedings, contenting ourselves with congratulating the directors and officers of the society on the resolutions passed, and their having gone through the ordeal so highly satisfactory, which is, perhaps, best illustrated by the observations of Mr. Ald. FAREBROTHERS, and the resolutions in favour of the directors, and Mr. BIGNOLD, the intelligent and able secretary, to whom it is acknowledged much merit is due for the success which has attended this establishment.

The question of precedence, or patent right, which exists between Mr. SAMUEL HALL and Mr. CHARLES WYE WILLIAMS, is one, we apprehend, that will lead to much correspondence, judging from the letter of the latter gentleman, which appears in our columns of to-day. We are glad, however, to find that Mr. WILLIAMS's letter is couched in less personal terms than that to which it is a reply; and, as Mr. WILLIAMS expresses his intention of clearly demonstrating that the patent, or mode of application adopted by Mr. HALL, is an infringement on his patent, and not in accordance with the specification entered by Mr. HALL in 1836 and 1838, we look forward with some degree of interest to the letters or exposition promised, trusting that both gentlemen will confine themselves to the simple question at issue, and not indulge in personal allusions, which at all times detract from the weight of any argument which may be put forward.

In our columns of to-day will be found a communication from Dr. PAVENNE, on subject of his submarine experiments, animated upon in the letter of a correspondent in last week's Journal. At all times, to award the meed of merit where justly due, we await the publication of those details comprehended in the specification, ere we offer an opinion; but we can readily imagine in their absence that the like object may be achieved by two different parties, without collusion, or previous knowledge of the plans adopted by the one or other, while success may attend both, and yet acquired by different means. We have been led to consider FULTON as the mechanic—the result of late experiments would induce us to consider Dr. PAVENNE as the practical chemist, and we can understand, that, while the one has the power of constructing a submarine boat, the other may have accomplished the grand desideratum—that of driving himself of the construction of the former, and rendering it practically useful, by forming or constituting those gases, or air, necessary for life, where the inhalation of atmospheric air is cut off, as in the case under consideration. We hope shortly to have it in our power to enter more fully into the merits of the discovery, and, in the meantime, recommend the letters which appear in our present Number to the attention of our correspondent, "J. P. C.," to whom we are indebted for directing our notice to the matter.

SINKING FOR WATER IN THE CHALK FORMATION.

At a late meeting of the Institution of Civil Engineers, Mr. F. Heathwhite presented and explained a model of a well sunk by him in the year 1841 at Meers, Kent's brewery, in order to obtain water from the chalk, which had become indispensable, in consequence of the decrease of the supply of water from the sand spring. On examining the lower part of the well, which had collapsed in 1814, he found that the dimensions of the cast-iron cylinder to be introduced must be limited to 5 ft. 3 in. by 3 ft. 2 in. It was commenced at the depth of 67 feet from the surface, and carried down 135 feet, to within 1 ft. 6 in. of the face of the first bed of flints in the chalk. Being desirous of retaining all the water from the sand spring, he inserted an internal cylinder, which was sunk into the chalk at a depth of 135 feet from the surface—thus effectually shutting out the sand spring from that of the chalk, but permitting the former to flow in its accustomed level in the space between the two cylinders; and, to make this supply available in case of need, corks were inserted in the internal cylinder at convenient depths. He then proceeded with the excavation in the chalk, increasing the dimensions at every foot in depth, until, at 178 feet from the surface, the diameter was 16 ft. 6 in.; the excavation was continued at that diameter to a depth of 302 feet from the surface. In the progress of the work, water was found under the second, sixth, eighth, and tenth beds of flints, and the total supply at this period was 3000 barrels, or 70,000 gallons, per day of twenty-four hours. At 195 feet from the surface the first tunnel was driven nearly one foot north-west in the direction of another well, which only increased the supply 400 barrels, or 14,400 gallons, in twenty-four hours. The eighth bed of flints, at 154 feet from the surface, yielding the largest quantity of water (300 barrels, or 10,800 gallons per day), he drove a second tunnel, six feet high by five feet wide, for sixteen feet east to west, and then north and south for 108 feet, by which he obtained an increase of 1300 barrels, or 34,800 gallons per day. Having ascertained, by boring, that a further supply of water could be obtained at twenty feet below, he continued the excavation twenty feet deeper by seven feet diameter, when he found water flowing from two horizontal fissures in the chalk without flints; at that depth he drove two tunnels, one north-west connected with the first tunnel, ninety-one feet long, by which he obtained an increase of 3100 barrels, or 121,600 gallons per day; the second tunnel in a south-east direction was driven for twenty-four feet, when he obtained a further increase of 600 barrels, or 16,800 gallons per day. The total quantity of water thus obtained from the chalk was 7700 barrels, or 277,200 gallons per day of twenty-four hours, or 193 gallons per minute, forming, at the same time, a reservoir in the chalk which could contain 100,000 gallons. He stated the total expense to be under 7000l., including the hire and repair of temporary pumps, and the cost of two new sets of permanent pumps.

ARTESIAN WELL AT SOUTHAMPTON.—The greatest excitement is prevailing in Southampton from the failure of the Artesian well. Mr. Richardson, F.R.S. (of the British Museum), has been engaged in tracing the cause, which he has pronounced to be incomprehensible, as no work could have been conducted more consistently with geological principles; the well has been sunk to an immense depth, and its present termination is in the heart of the chalk formation. The greatest distress is felt in the town from a want of water.

ARTESIAN WELL AT GENEVA.—The workmen continue to be busily employed in putting down the tube in the Artesian well, and it is supposed that the work will be completed by the end of the present month. The public are still excluded from visiting the well.—We since hear that the boring is now nearly completed. During the last two months the water issuing from it was perfectly limpid, and its heat uniformly maintained itself at 27½ degrees of the centigrade thermometer.

IRON WORKS IN FRANCE.—In the town of Alsace, devoted to iron-works, there are four high blast-furnaces, twelve puddling-furnaces, and six rolling-furnaces, and 136 coke ovens. The coke works are at Grand Combe. Three furnaces (two cold-blast, and one hot-blast) are at work, producing 200 tons a week. The fourth furnace is not yet at work. The two cold-blast furnaces formerly used hot-blast, but gave it up, finding that it did not answer. Most of the iron produced is converted into rails. There are two steam-engines, one of 60-horse power, and the other of 30.

STEAM-BUILDING.—Mr. James O'Connor, in a memorial to Congress of the United States, on the subject of steam-boilers, says that a steam-boiler cannot be heated up to 360° without certain and inevitable explosion. A general knowledge of this fact, it is thought, would prevent the recurrence of such appalling catastrophes as have been witnessed.

MR. PAVENNE.—We regret to learn that the well-known and respected Inspector of steam-engines has just expired, from the effect of the blow he received on Thursday week in Whitechapel Dock, from the sudden breaking of a chain cable while being tested, a portion of it having been thrown back and struck him on the body, driving him with great force against the wall of the great house.

IMPORTANCE OF THE USE OF IRON IN SHIP BUILDING.

The mining interest of this country is one of no ordinary importance. The fact that the minerals which lie richly stored beneath the soil of Great Britain, when rendered available by the industry of our people, compose one of the principal sources of our national strength, is now so commonly acknowledged as to have become almost proverbial. Every fresh means by which the demand for the productions of our mines may be increased, must be hailed as a direct gain to the nation at large. While unemployed the ore is perfectly valueless—it is so much of the country's capital sunk and lost; but when, by the efforts of man, its virtues are drawn forth, the products are all clear gain. A small portion of it goes into the pocket of the owner of the land, and a very large proportion of its value consists in the amount of wages paid to the labouring classes employed in raising and converting it. It is needless to trace the advantages that result from such causes, and the very important part such operations have borne, and may, to a much greater extent than heretofore, be made to bear, in supporting and perpetuating our country's glory. There are, however, two additional considerations that render the question one of paramount importance. We may first inquire—Can the metals produced from our mines be employed as substitutes for materials brought from other lands, by which our capital is drained out of the country? And, secondly—Will the articles manufactured from these metals be superior to those constructed or manufactured from the foreign productions? To both inquiries we may give the most decided answer, that by employing iron as a material for ship building we use it as a substitute for the timber of other countries—at the same time, that we construct a vessel in every respect superior, and which, in addition to its direct advantages, such as increased strength, durability, stowage, &c., will enable our own mercantile marine to cope with the ships of foreign countries in freights, and reverse the order of things at present existing—facts brought forward by the Government commissioners employed in the inquiry, clearly showing that it is quite impossible at present for our ships to maintain their ground, while foreign vessels can work at such reduced freights. To all these, and to many other advantages, does this subject give rise, that we do not hesitate in pronouncing it one of the highest national considerations, and worthy of individual and legislative inquiry. We will, however, take a few moments to show, by figures, to what extent the substitution of iron for timber in ship building will be found to be advantageous; in doing this, we, at the same time, contemplate that much more of the ship will be built of iron than at present—an opinion in which we fully agree with Mr. Grantham, and that not only the hull, but the masts and rigging, will be of the same material; for evidence of the latter we refer to the report of a trial in the case of "Smith v. Watson," given in our Journal. If experience should prove that we are correct in our opinion, all the most costly parts of a vessel will be of iron—leaving, probably, not more than one-eighth of the whole of any other material. Supposing, then, the average value of a ship ready for sea to be 20l. per ton, 11l. 10s. will be expended in iron-work, and, taking the shipping required for this country at 200,000 tons per annum, we show an expenditure of nearly 3,500,000l. sterling in iron-work alone, a very large proportion of which is caused by the wages paid for producing and working it. This calculation allows nothing for the increase that may be expected in the number of our ships when better able to compete with foreigners. Mr. Grantham has, in different ways, urged this important consideration, and has shown that, in consequence of the difficulty of getting timber for our vessels, our docks are crowded with colonial and foreign-built ships, so that a very small portion of their cost is expended in the employment of our own people, and a very small portion of the materials is the production of our own soil. By this simple illustration we hope we have shown that the question of iron ships is of the first importance for England; and when we contemplate the prospect of the result of steam navigation, and on the navy, it assumes a character that calls loudly for inquiry.

STATISTICS OF BANKING—SCOTCH BANKS.

SEPTEMBER, 1842.

BY MR. ROBERT ALLAN, EDINBURGH.

Name.	Estab.	Branches.	Partners.	Capital.	Paid.	Prize.
Bank of Scotland	1695	39	439	1,000,000	100	150 0 0
Royal Bank of Scotland	1727	6	417	2,000,000	100	150 0 0
British Linen Co.	1746	1	168	100,000	100	100 0 0
Dundee Banking Co.	1761	1	23	100,000	100	100 0 0
Perth Banking Co.	1766	1	23	100,000	100	100 0 0
Aberdeen Banking Co.	1767	1	23	100,000	100	100 0 0
Ayr Bank	1773	7	10	Private	—	—
Greenock Bank	1785	4	6	Private	—	—
Glasgow & Ship Bank Co.	1809	1	21	—	—	—
Dundee Union Bank	1810	4	165	150,000	24	30 0 0
Commercial Bk. of Scotland	1810	10	547	600,000	100	150 0 0
National Bank of Scotland	1825	10	600	1,000,000	10	14 0 0
Aberdeen Town & County	1825	1	29	150,000	15	22 5 0
Ayr Bank	1831	1	29	40,000	200	200 0 0
Glasgow Union Banking Co.	1830	33	514	100,000	50	25 0 0
Argyle Banking Co.	1831	10	100	30,000	55	—
Western Bank of Scotland	1835	29	411	1,000,000	50	10 0 0
Central Bank of Scotland	1834	7	453	60,000	55	55 0 0
N. of Scotland Banking Co.	1836	57	1320	200,000	5	0 10 0
Clydebank Banking Co.	1839	7	617	500,000	10	12 5 0
Southern Bank of Scotland	1839	6	600	125,000	5	0 0 0
Eastern Bank of Scotland	1839	0	0	600,000	15	11 0 0
Caledonian Banking Co.	1839	10	1030	25,000	25	—
Paisley Commercial	1839	5	304	100,000	10	10 0 0
Edinburgh and Leith Bank	1839	15	700	500,000	5	5 10 0
City of Glasgow Bank	1839	1	0	600,000	65	0 0 0
Greenock Union Bank	1840	4	0	100,000	5	0 0 0
Glasgow Joint Stock Bank	1840	—	615	100,000	25	2 12 0

TIME BARGAINS IN SHARES.—The publication of a clause in the new Bankrupt Act, which will shortly come into operation, has caused some uneasiness among the dealers in shares. This act will render most of the parties usually engaged in time bargains; and the clause particularly alluded to provides, that all certificates shall be void, if the bankrupt, in any gaming or wagering, loses 20l., or within one year next preceding his bankruptcy has lost 200l. by any contract for the purchase or sale of any Government or other stock, where such contract was not performed within one week after the contract, or where the stock bought or sold was not actually transferred or delivered in pursuance of such contract. A more complete death-blow to time bargains can scarcely be conceived.

PRESERVATION OF NITRATE OF SILVER.—M. Demoulin has for a long time employed a very simple process for preserving the nitrate of silver from the injurious effects of exposure to the air when run into sticks. It consists in merely coating the sticks with engraver's sealing-wax, which contains a large quantity of shellac. This was adhered very well, and forms a strong and smooth varnish, as it were, which remains unaffected by the atmosphere. Thus protected, the nitrate no longer stains the fingers, injures the caustic case, nor is in any way changed by the moisture in the air, possesses a greater degree of solidity, and, at the same time, the process is of exceeding service in practice, inasmuch as when wanted for use, a small part only of the caustic need be uncovered by means of a pen-knife, so that its application can be restricted to the part where it is required.

INDIA-RUBBER PAVEMENT.—Who would have thought of paving our streets, stairs, and passages with India-rubber? Yet such a thing seems to be expected, for we find in the *Polytechnic Journal* the notice of a plan for so doing. The price will be about the same as the best asphalt pavement. It is an elastic that it will not fracture with the heaviest load, which property prevents its wearing away. It can be cleaned, repaired, &c. with a small expense, as the old material can be taken back and re-worked. We have understood that many persons of high rank have ordered their stairs to be laid down with the caustic gum pavement; the advantages of which, to the feet of horses, seem immediately suggest itself.

NOTICES TO CORRESPONDENTS.

"W. S."—The venerable Dr. Dalton was, a few days since, in the enjoyment of his usual health, and capable of undertaking his regular exercise; but, from his great age, it cannot be expected that he can long remain with us.

SUBMARINE EXPERIMENTS.—The insertion of the communication from Mr. H. of Plymouth, is not requisite, as one, in another column, from Dr. PAVENNE, anticipates his remarks.

VENUEAS.—The subject has been repeatedly noticed in our columns—some remarks may possibly appear in our next.

THE MINING JOURNAL, Railway and Commercial Gazette.

LONDON, SEPTEMBER 17, 1842.

The gratifying intelligence we have elsewhere announced, of improvement in the iron trade, we are glad to find corroborated by this morning's post. One correspondent, under date Beaufort, September 16, writes:—"It is with pleasure I have to inform you that a very great improvement has taken place in the Welsh iron-works. At Cyfartha they contemplate blowing in three blast-furnaces—Penydarren two, and Dowlais two—which will, of course, give employment to hundreds of men, who have been thrown out of employment in consequence of the Varteg and Victoria Works being at a complete stand. This improvement in the iron trade, and the reduction in the price of provisions, will add very materially to the comforts of the working classes—and, indeed, the whole neighbourhood." This statement is also confirmed by other correspondents.

The pamphlet of Mr. JOHN BASSETT, late Member for Helston, and representative of the DE DUNSTONVILLE family, calls for more than a mere passing remark by way of review, more particularly as the arguments adduced are founded upon the observations which have appeared in the *MINING JOURNAL* on the New Tariff, the principles of which, and the advantages calculated upon, that gentleman upholds, considering that the effects will be far less disastrous than those contemplated by us, and, at the same time, giving credit to the Minister for the policy of his measure. We need hardly say that we do not concur in the correctness of the deductions drawn by Mr. BASSETT, but as it will be necessary to illustrate our position, and, at least, endeavour to establish its correctness, we defer until next week offering any observations on the pamphlet, which shall then receive full notice, and which, in the meantime, we recommend to the perusal of our readers, whether adverse to the measure or otherwise.

In the absence of a "School of Mines," which we are, however, yet sanguine enough to believe will be established by Government, which gives its support to "singing for the million," it is gratifying to find, that the example set by the Durham University has not only been followed up by the council, or directors, of King's College and the London University, but that the department of civil engineering in the latter establishment promises to become far more useful than we could have expected on its first formation—a result, doubtless, attributable to the success which has attended the early efforts in the probationary school, for such we may term it. We have not space to enter into the system of education provided under this head, but will endeavour next week to offer a summary, which, although not complete, is an advance, and, if well supported, must lead to results highly beneficial to the rising generation. Practical education, however, is most essential, and we augur well from the lectures delivered by Professor VIGNOLES, "On Civil Engineering," illustrated by visits to railways in the neighbourhood of London, more especially the Croydon line, the observations on which will not be soon forgotten by the student, the directors, or their engineer.

We have devoted more than the ordinary space to which we limit our notice of the proceedings of public companies (except on extraordinary occasions), in giving a report of the meeting of the shareholders and officers in the Norwich Union Life Assurance Company, for, inasmuch that our reports, when of a lengthened character, have been too often in cases where exposure of abuses has been the object, it is, on the present occasion, a more pleasing duty to report favourably. It will be in the recollection of our readers, that there has unfortunately existed in this company a diversity of opinion, and, consequently, that, with the most satisfactory prospects, such have been clouded by the difference existing with the proprietary—in recording the amicable arrangement which has been effected, we consider our columns are not only usefully employed, but that the desire is evinced of awarding merit where due, as well as it is our determination, on all occasions, to expose chicanery and fraud.

It must have been highly gratifying to the members to learn, from the chairman, that a more friendly feeling exists with those interested, and that "the prosperity of the establishment had greatly increased"—which latter we consider a natural consequence attendant on unanimity. The surplus, or profits, for the twelve months ending 30th June, 1841, is stated at 30,336l. 10s. 3d.

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STANDARD OF COPPER ORE.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—The explanation of the term "standard," as applicable to copper ore, contained in your last Number, as stated by Mr. Budge, cannot fail of being very satisfactory to all who were not previously acquainted with the technical import of the word. I consider the communication of the explanation as an act of courtesy, in answer to an application which I made some months since through your valuable Journal, and, emboldened by my success in this instance, I now beg liberty to say that, if one of your qualified correspondents will have the kindness to enlarge the bounds of practical science, by stating the precise mode of dry assay of copper ores, as practised by those who assay between the miner and the smelter, he will confer a benefit upon, and be entitled to the thanks of many, who, from their locations being far distant from the scenes of mining or smelting operations, have not an opportunity of acquiring a knowledge of the actual manipulations—the composition of the proper fluxes—the degree of heat required—the mode of obtaining that heat, whether by means of an air-furnace or by the crucible-furnace with blast—and the process of refining the button obtained in the first process, are several points of great interest, and of which a minute detail would be very valuable to the young metallurgist; and I cannot doubt your ability and desire to obtain from one or more of your scientific practical correspondents the information sought. The interests of science and its useful progress are greatly aided by the facility which your Journal affords for the interchange of such communications.

Thanking you for the kindness with which you have received and acknowledged my previous applications, and requesting that you will excuse the trouble thus given to you by a stranger, I remain, &c.,

Cheltenham, Sept. 12.

A SUBSCRIBER.

DURHAM COUNTY COAL COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Allow me to correct a double error which has crept into your leader of last Saturday respecting the Durham County Coal Company. There are not 10,000 shares, but considerably under 5000; and 40l. per share has been paid up, not 37l., as stated by you, and which has appeared in your list of prices for weeks past. I trust the report of Mr. Dunn, and a statement of the financial affairs of the company for the past half-year, will yet be published for the benefit of the distant shareholders. I also trust you will not fail to apply the lash to those lovers of peace and justice (I), the directors of the Stockton and Darlington Railway, for illegally withholding an enormous sum—between 10,000l. and 11,000l.—due to the Durham County Coal Company.

London, Sept. 13.

DURHAM.

SUBMARINE EXPERIMENTS—R. FULTON AND DR. PAYERNE.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Your correspondent "J. F. C., of New York," when commenting on the claim which Dr. Payerne makes to certain discoveries in aid of submarine proceedings, claims "priority in those extraordinary performances for his fellow countryman, Robert Fulton." I give no opinion as to the party who is entitled to the credit of the discovery, or of its practical application to useful purposes, and I only notice them incidentally, as affording me an opportunity of asking "J. F. C., of New York," whether he thereby claims for America the honour of having given birth to Robert Fulton? If he does, I, for one, will thank him to state his authority for the claim. I believe that Fulton was born in England, of English parents, but that he emigrated to America in early life. Wherever he was born he is largely entitled to the credit of many of the seemingly recent discoveries in mechanical science—and this opportunity may be not unsafely afforded for verifying the birth-place of a man who was so largely imbued with the power of genius.

Sept. 12.

A SUBSCRIBER.

MINE SETTS—No. V.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—We have already spoken briefly of the lodes, "where wealth in the mine night is multiplied with silent growth," and of that miserable misanthropy which reminds one of the dog in the manger! Surely, the risks attendant on mining operations—where it is generally hit or miss, a palace or a prison—would be quite sufficient, without any difficulties being thrown in the way of obtaining grants, especially such as lords refusing where there are bounds. By-the-by, some arrangement between lords and landowners ought long since to have been made. Perhaps, one reason why more mines are not discovered is, that men are not allowed to sink pits in search of beds of lodes, and the tenants, who discover such by accident, keeping their secrets for reasons obvious—metals and minerals being excepted in their leases, as well as the liberty to work for ore, &c., without compensation!

But we are come to the consideration of the question—Whether any legislative provision should be made to compel landowners (including the Duchy and bounties), or to empower Judges, Recordors, or Justices, to grant, in the absence of an agreement, or of a subsisting sett which is being effectively wrought? We have laws enough, Heaven knows; and, did not on imperious necessity, or, rather, the welfare of the state, demand something of the kind we are about to propose, we would be the last to attempt to increase the number. "We want laws to develop national wealth, and give employment to the people," is now a general sentiment. Industrious men have a right to support on the soil on which they are born; but, shall the miner die—a hundred thousand Cornish boys will know the reason why. Not by force of arms, but by force of brains. Moral might and mental power, Mr. Editor, are quite sufficient for our purpose, though, when mankind is hoarded, and reason insulted, "the fist of a nation is as stern as the scum of Death." We will keep our physical force as a dernier resort, when the setts are granted by the perpetual Commissioners of Mines, or some other functionary—say, the Vice-Warden—after a jury of twelve have found that it will be for the benefit of the Commonwealth.

But (to be serious), that some men and their posterities, transmitting their prejudices by oral traditions, would continue their metals and minerals in locked, and even unmined, grounds, unwrought till Doomsday, we may safely anticipate. It would not, perhaps, be wise to leave the matter to justice, as country "equities," though they may be "all, all honourable men," with high notions of caste, bred "in and in," and a fellow-feeling—"you know the rest." What think you of an application to a Judge in court (previously authorized by statute, the fountain of modern law), grounded on affidavits as to responsibility of parties, desire to work, and probability of metals, minerals, clay slate, lime, &c., &c., being found therein, the working of which would benefit the State. Trustees, Charitable committees, &c., to be at liberty to grant setts to, or make agreements with, miners. Mr. Dunn is to be requested to lodge, and compensation to tenants. Having now nearly filled my sheet, we will defer till my next the analogous case to which, on the ground of public utility, demand some legislative enactment to compel the granting of setts by those who, since Mr. Robert Weir Fox's really interesting experiments, will, perhaps, refuse to grant too generously, but the next generation should be without metal, in consequence of the electricity escaping from the lodes (now freezing) through the many vent holes!

Preston, Aug. 29.

ALFRED T. J. MARTIN.

ECONOMY OF ANTHRACITE COAL FOR STEAM-BOATS.—The report of the Camden and Amherst Railroad Company, mentions a fact which will not be without its influence in materially extending the consumption of anthracite coal. It is stated that in one of the boats of the company, the *Wrentham*, when new boilers were built during the past year, upon a plan calculated for the best application of coal, the consumption per day does not exceed two tons and a quarter, costing ten dollars, whilst seven cords of wood, costing 37 1/2 dollars, were consumed formerly by the same boat, on the same run.—*Miner's Journal* (U.S.).

TWO WEEKS IN THE LONDON RAILWAY.—In the course of an interesting discussion, at the Institution of Civil Engineers, Mr. Palmer directed the attention of the meeting to the extent of the wells in the London Basin, given in Compton and Phillips's *Geology*. It is there stated, that at Farnham, which is about seventy feet above high-water mark, after boring through 125 feet of clay and two feet of calcareous sandstone rock, the water rose to within a short distance of the surface in a few hours. At Ripping, where the summit of the well is 345 feet above high-water mark, the maximum depth of the bore was 400 feet, but it was abandoned because no water was found; at the end of 350 yards the water rose to within twenty-six feet of the surface, and it has continued, at 324 feet above high-water mark.

MINING IN AMERICA.

The rapid advances made in America during the past few years in the mineral districts, especially as regards the development of the coal-fields, and the manufacture of iron, claim more than a mere passing comment. The production of iron, in 1840, amounted to 286,963 tons, in which 864 furnaces were employed; of bar-iron the production was 197,233 tons, in which 795 forges, &c., were employed—the consumption of fuel for both these branches being 1,528,119 tons, while the amount of capital invested was 29,433,131 dollars, and the number of hands employed, including mining operators, 30,497. The production of lead amounted to 31,239,453 lbs., which employed 120 smelting-houses, 1017 men, and an investment of 1,346,756 dollars. The production of gold was valued at 529,605 dollars, employing 157 smelting-houses, 1046 men, and an investment of 234,323 dollars; and the production of all other metals at 370,614 dollars, affording employment to 728 men, with an invested capital of 238,980 dollars. From the coal mines the products were 863,489 tons anthracite, and 27,683,191 tons bituminous—in the former of which there was invested 4,355,602 dollars, and in the latter 1,868,862 dollars. From the salt mines the produce was 6,179,174 bushels, in the raising of which 6,908,045 dollars were expended, and 2365 men employed. And the value produced from the granite, marble, and other stone works was 3,695,884 dollars, employing 7859 men, with an invested capital of 2,540,159 dollars.—We purpose, henceforth, making such extracts from works and official documents which may come under our notice, as also giving insertion to original communications under this head as may bear on the subject, and, on the present occasion, avail ourselves of the pages of the *American Journal of Science and Arts*, which fully supports the high character it has so long maintained as a valuable work devoted to science, under the able supervision of Professor Silliman, and who is now assisted by his son, Benjamin Silliman, jun., of Yale College.

GEOLOGICAL AND STATISTICAL NOTICE OF THE COAL MINES IN THE VICINITY OF RICHMOND, VA.

BY A. N. WOOLDRIDGE, ESQ.

(President of the Mid-Atlantic Mining Company.)

The coal-field of this vicinity lies about thirteen miles west of Richmond; is known to extend from about fifteen miles north of James River, south, beyond the Appomattox River—is said to be some fifty miles in length, and in breadth about twelve miles; its bearing is some thirteen degrees west of south—it lies upon granite, and is supposed to be in the form of an ellipse; it extends to the east and west. The coal lies in six counties—Henrico, Hanover, Gloucester, Chesterfield, Powhatan, and Amelia. The mines in Chesterfield county, near the Buckingham-road, leading from Richmond to Lynchburg, may be said, so far as the north and south points are regarded, to occupy the centre of the field on the eastern outcrop; and it is in this vicinity that the coal appears in its greatest thickness and purity; it varies from fifty feet to some four or five feet in thickness. A full and accurate account of the field and the quality of the coals is anticipated from the report of Professor Rogers, to be made to the next legislature of Virginia. It may be well, perhaps, to remark, that all the explorations and workings in this coal-field have been confined chiefly to the outcrop, or sides, of the basin, and that there is nothing yet developed indicating, with any degree of certainty, how thick or deep the coal will be found imbedded in the centre of the field; but it is believed that enough has been ascertained to show that so thick, varied, and valuable a deposit of bituminous coal, in the same space, is not to be found anywhere else.

The first mines discovered in this vicinity were the Old Blackheath Pits, Back and Caniffe's, Rose and Curry's, Woolldridge's, Ralley's, and the Green Hole, and on James River, in Chesterfield county, also Trabue's and Sallee's pits. These have all been discontinued or worked out; they produced coal of excellent quality for smelting purposes, particularly the Old Blackheath Mines. The mines now in operation are the Maidenhead Pits, known as the mines of the Blackheath Company of Colliers, discovered in 1821. There are at these mines several shafts, varying from 150 to 700 feet deep; during the year before last, Colonel Heth, originally a large shareholder, purchased these mines of this incorporated company, with all their real estate and other property; he bought also Sallee's pits, with a large adjoining tract—intending to combine all these various tracts so as to form a new company, and with that object went out to England. While there, an explosion from inflammable gas occurred in his mines, and destroyed fifty-three out of fifty-six persons who were in the pits. He brought out from England suitable men to reclaim his mines, which was done, and with him came agents sent out to examine and report as to the value of this property. He is now in England, closing a sale of the whole of this property, and the agents of the English company are expected out to put these mines under work—the water being kept out, so that they can be put in working operation at any time. On the Maidenhead tract are two deep shafts, the one in which the explosion took place, about 700 feet in depth, and the other completed during the last year, about 600 feet deep. The coal from these mines is of good quality, averaging thirty-six feet in thickness, and the two shafts can produce 2,000,000 bushels of coal per annum. On this estate are all the buildings, engines, and other machinery necessary for a large business, with a railroad, the property of the company, leading from the pits to James River, and passing through the tract of land owned by said company, called Sallee's, containing a valuable deposit of iron ore, which it is presumed will shortly be worked extensively and profitably, as the ore is in the midst of the coal mines, intersected by the company's railroad, within a mile of James River, and not more than about twelve miles from Richmond. Explosions occurred several times in the Maidenhead Pits, prior to the great explosion. On these occasions several men were killed and burned. At that time the art of ventilating coal mines was imperfectly understood here. Since that period much greater, if not entire security, exists under the ventilation by Newcastle gasmen.

On the north of these works lie the mines owned by Thompson Hunt, now under a lease to Colonel Heth, and best known as the pits of Willis, Brown, and Co., of whom Colonel Heth purchased the lease; but one shaft, and that about 400 feet deep to the coal, is in operation at these mines; at the bottom of the shaft there are two inclined planes, one worked by mule power and the other by steam. These slopes increase the depth about 300 feet more; a steam-engine is in operation over the pit. A force of about ninety hands is employed, including those at top and bottom, and the carts—these pits being about two miles from the coal railroad leading from Manchester, which is the shipping point on this water to most of the mines in the vicinity. The coal, which is about thirty feet thick, is of superior quality for smitheries, and the product about 400,000 bushels per annum. Several accidents by explosive gas occurred in these mines during the last year and preceding years, by which some lives were lost, and several men severely burned. They are now wrought safely, under the management of Newcastle ventilators. These mines were opened about twenty-five years ago; during the first year's operation, when the miners were out of their dinner, about one o'clock in the day, and within an hour from the time they ascended, the pit fired, and the flames instantly rushed from the shaft to the height of 300 feet above the surface; whether this was caused by an explosion of gas or otherwise is uncertain.

Immediately adjoining these mines on the north are those called the Gowrie pits, owned by Murchie, Menzies, and Brander, and now worked under a lease by George H. Brown. There are two shafts on this property, one about 100 feet deep, the other about 600; about 50,000 bushels of coal will be hoisted from these mines the present year. The coal is about six feet thick; it is suited for grates and for steam-engines. The present prospect is not promising; the shafts seemingly have been sunk on fringes, and a good body of coal is supposed to be on the dip of the present works. There are employed at these mines forty men, including top and bottom hands, and cartmen, and they are about the same distance from the railroad as the last-named mines. It is probable that these mines will not be worked the coming year.

Next on the north-east are the old pits of Back and Caniffe, mentioned before as having been worked out; and on the north-east of them are the Old Blackheath Mines, in like condition. About two miles north are Sallee's pits, named before as being unwrought, and containing iron ore lying over the coal, and now owned by the English company, in which company Colonel Heth retains a royalty upon one-half of the minerals owned by it, as well as in the coal property; on the north is Trabue's old pits, extending to James River, now owned by Thomas H. Burfoot, and under a lease to Steadfast, Davis, and Co., who have sunk some shallow shafts south of the former workings, from 10 to 300 feet deep. There will be raised from these mines during the present year about 100,000 bushels of coal; they give employment to about fifty men. This coal being raised from near the outcrop, is not very suitable for anything but domestic fuel. A new shaft is now sinking in this land, and from the great influx of water a small steam-engine has been put up to aid in sinking. On the south-east of these mines, on the lands of Major Clarke, some years ago, coal was mined by a small shaft.

We return now to the Maidenhead Pits, being the point in the working mines where we began, and which lie on both sides of the Buckingham road; Woolldridge's old pits and Ralley's, the property of Nicholas Mills, and before mentioned as being unwrought and exhausted, are directly east and adjoining.

* It is probable that this coal-field extends through Virginia into North Carolina. One of the persons who explored the one of three surrounding the shaft in a basket, 1800 feet, was thrown up in the basket to the full length of the rope raising over pulleys at the pit-head frame, that was forty feet above the surface; they were then thrown probably towards the top. The man saved, who remained in the basket, had both thighs fractured.

* What other mines can be assigned? It is highly probable that any bituminous deposit could have produced such an effect.—*Ed.*

These mines were not abandoned until the close of the last year, having been for the last half dozen years worked by Mills, Reid, and Co. East of these mines are the old Union pits, not before named, but worked out, not having been wrought more than some fifteen years after being discovered. South of these are the exhausted mines owned by Nicholas Mills, and known as Mills Creek pits, which, like the Union pits, did not last working more than twelve or fifteen years after being discovered. South of these are the old Green Hole pits, before named as one of the oldest pits, and exhausted by working. The coal raised from all these old mines was of very good quality. Next and immediately south, lie the Creek Company's mines, discovered about four years ago. They were valued and sold to an incorporated company at \$96,000. They have but one shaft in operation, about 350 feet deep, worked by a steam-engine on the ground, and mule power operating below on an incline. The present year's product will be, as it has been for the two preceding years, about 250,000 to 300,000 bushels of coal, and there are employed here about seventy men at top and bottom. The coal is of good quality, but is difficult to mine in consequence of the field being somewhat irregular. This company own all the necessary machinery, mules, and about thirty men, with a sufficient outfit of houses, two cooking ovens, and a branch railroad connecting their mines with the main coal railroad to Manchester. On the south of these works, and immediately adjoining, are the Stonehenge pits, now unwrought, owned by the heirs of Martin Ralley, deceased. The old shafts at these mines are numerous, and vary in depth from 50 to 400 feet; it is supposed that the coal extends to the dip of the old works—new shafts it is supposed will be sunk, and extensive operations may in future be carried on. The coal from these pits ignites easily and burns freely, being very suitable for grates, locomotives, &c., but unsuitable for smiths' use. There are several seams of these coals; the first from twelve to sixteen feet in thickness, the next twenty-eight inches, the third four and a half feet. Other seams are known to exist below these, but have not been worked. These coals were discovered about thirty years ago, by a crew-fish bringing up coals to the surface above his hole. Woolldridge's old pits were discovered by the wheels of the waggon running on the Buckingham road turning up coal in the rut; and the coal at the old Green Hole pits was said to be discovered by a deer jumping across the creek, and throwing up coal on the snow. The time of the discovery is not accurately known.

The Mid-Lothian Coal Mining Company's pits lie immediately south of the Maidenhead Mines, south-west of Ralley's pits, west of the Creek Company's mines, west and south of Stonehenge, and adjoin all these mines. This company procured a charter in 1835, and was organized in 1836. The sinking for coal preceded the organization of the company, and was in anticipation of it. The tract of land contains 4045 acres; upon the north-east corner, being the rise, a shaft had been previously sunk and worked; it is 500 feet deep. By inadvertent mining, it crashed the pillars of coal, settled down, and was abandoned in 1836; there not being more than five or six acres worked by the then lessees. These lands, being two tracts, were valued at \$300,000, and owned by William Woolldridge's heirs, to wit, Dr. A. L. Woolldridge, Jane A. Elam, Charlotte Woolldridge, and myself. The capital was divided into 3000 shares of \$100 each; and one-third, being 1000 shares, was sold to some thirty shareholders, in and around Richmond—generally, of the most respectable and wealthy class. The \$100,000 cash, the amount thus raised, was given to the company as a capital for sinking, purchasing machinery, for labourers, &c. Four shafts were commenced, nearly in a line on the run of the coal, extending a mile or more.

In the autumn of 1839 coal was found in one shaft at the depth of 793 feet to the coal, at which time the other three were temporarily suspended, one being 638 feet deep, one 309, and the other 85 feet. These shafts are eleven feet square, divided into four chambers by timbers, and, from the samples of metals sent, you will see that sandstone and slate, in alternate layers, form the covering over the coal. The last shaft was recommenced at the beginning of the present year, and is now down 350 feet, and it is expected coal will be reached by the 1st of next June, at the depth of 600 feet. The last year about 300,000 bushels of coal were hoisted; the present year about 600,000 bushels will be raised, and the quantity would have been enlarged had the demand justified the increase. Coal in the working shaft was found, as before stated, at the depth of 793 feet from the surface—the coal in the shaft was thirty-six feet thick, and the sink below the coal is 165 feet deep—making the whole depth of the shaft 773 feet. I write now from memory, and may not be critically correct as to a foot. In the journal sent you of the metals, the specimens and list commence about 340 feet below the surface. The upper metals in the samples kept, got mixed or damaged, and were thrown away. Any discrepancy (if any) in the journal of metals as kept with the depth of the shaft, as here given, must have been produced by the difficulty of measuring the thickness of the metals on the side of the shaft in sinking. The coal lies at an angle of about 35°, dipping to the west. The thickness of the coal varies, which, I presume, produced by the form of the rock upon which it is deposited being uneven; in some places the coal rises to fully fifty feet in thickness. The whole capital was expended in sinking, as above described, in procuring a large steam engine, buildings, mules, and mule-power machines, railroads above and underground, besides some eighteen labourers, and a coal-yard and fixtures. The whole of the lands are supposed to contain coal. The exploring drifts now in progress extend north and south over a quarter of a mile; the coal on the west being the dip, and on the east being the rise, seems to indicate great regularity—a drift now going on to the south-west on a slope shows that the coal is flattening off, it not dipping now more than one in ten feet, and in quality is of the most promising character. It will be seen by observing the location of these mines, as stated before, that the lands take in the coal from the eastern outcrop, on the south, so as to reach over on the dip fully a mile, far beyond any explorations westward. The present works and fixtures are capable of producing 1,000,000 bushels per annum, and by the aid of a second engine over the same shaft, another million might be produced. The next year, when the sinking shaft shall have reached coal, 2,000,000 per annum can be raised, and that quantity doubled by increasing the steam power. Two large steam-engines are now building, and intended to be erected before the close of the season; one over the sinking shaft, and the other to the mines to operate on the incline.

[To be continued.]

QUARRYING STONES.

Another remarkable example of the contributions of science to the arts of life is derived from the properties of heat, as applied in the East to quarrying blocks of stone, when the object is to extract large blocks from the surrounding mass. A groove is cut some two inches in depth in the required direction; this done, the groove is filled with fuel, which is kept lighted until the rock is highly heated. The rock then is, of course, expanded by the action of the heat; the fuel is then swept away, and cold water immediately poured into the groove. The sudden contraction causes the block instantly to split off. The same principle is daily exhibited on our tables. If a heated glass be suddenly filled with cold water, it immediately breaks in pieces. In this way blocks eighty feet long and six thick are easily taken off with no other labour than that of chiselling out the groove. A similar example of the application of science to the economy of power is exhibited in France in the quarrying of millstones. They are required, as you are well aware, to be circular and flat—cylinders with a very small altitude compared with the diameter—and the stone from which they are made is exceedingly hard. The mode of quarrying them is this.—A very high circular column of stone is wrought out of the requisite dimension. To slice off portions of this, such as are required by the common stone saw, would be a work of immense labour. A quite different agent is employed. At regular successive distances grooves are cut around the column, into which are driven dry wooden wedges at evening. The dew which falls during the night being absorbed by the wood, causes it to expand with a power so irresistible, that all the stones are found properly cracked off in the morning.—*Dr. LAMBERT: Lecture in the United States.*

SOLUBILITY OF SALTS IN FRUITJUICE OF MERCURY.—M. Wackenroder finds that the chloride, bromide, iodide, cyanide, and sulphocyanide of silver are soluble in pernitrate of mercury, and that the ferrocyanide, sulphuret, and subnitrate of silver are insoluble in the mercurial salt. These solutions are of a peculiar and uncommon nature. For example, neither nitric acid nor nitrate of silver precipitates anything from the solution of cyanide of silver in pernitrate of mercury; but a sufficient quantity of hydrosulphuric or hydrochloric acid, or metallic chlorides, precipitates from it cyanide or chloride of silver. On the contrary, hydrochloric acid, chloride of sodium or hydrochlorate of ammonia, readily precipitates chloride of silver from this solution; as excess of nitrate of silver also precipitates this salt completely, which nitric acid does not precipitate. The chloride, bromide, and iodide of mercury also dissolve readily in pernitrate of mercury. Chloride of mercury can be separated from these solutions by a gross texture only of chloride of sodium.

CHEMICAL EXPERIMENTS.—Dr. Ryan, the lecturer at the Polytechnic Institution, met with an accident at his residence, in Islington, on Friday week, while preparing some explosive mixtures intended to illustrate his evening lecture, but we are glad to find the injuries he received were not of so serious a nature as to detain him from his usual attendance of the institution. We cannot too highly commend the managers for prohibiting dangerous experiments within their establishment, so the late and disaster at Apthorpe's Hall should prove sufficient warning to prevent any similar occurrences, more especially where the disaster would prove so detrimental as in the valuable and interesting establishment of the Royal Polytechnic Institution.

* The miners' union for the rocks and other matters raised with the coal.—*Ed.*

MINING CORRESPONDENCE.

ENGLISH MINES.

HOLMBURY MINING COMPANY.

Sept. 12.—I beg leave to inform you that the lode in the 110 fathom level west is fourteen inches wide, and producing good stones of ore; in the mine sinking below this level the lode continues small and unproductive. In the 100 fathom level west the lode is fifteen inches wide, and worth 20s. per ton; at this level east the lode is six inches wide, and interminable with ore; in the cross-cut at this level, towards the Flagjack lode, the ground contains hard; in the eastern stopes, in the back of the 100 fathom level, the lode is two feet wide, and worth 35s. per fathom; the lode in the western stopes, in the back of ditto, is two and a half feet wide, and worth 60s. per fathom. In the ninety fathom level west the lode is still about fifteen inches wide, and worth 25s. per fathom; in the eastern stopes, in the back of this level, the lode is eighteen inches wide, and worth 32s. per fathom; in the middle stopes, in the back of ditto, is two and a half feet wide, and worth 25s. per fathom. The eighty fathom level east is without alteration; the cross-cut at this level, towards the north lode, is still progressing in favour of the lode; the lode in the stopes, in the back of ditto, is fifteen inches wide, and worth 25s. per fathom. The sixty-two fathom level east is without improvement. The tribute pitheas are still looking favourable.

F. PHILLIPS.

TRELEIGH CONSOLS MINING COMPANY.

Sept. 10.—At Christie engine-shaft the ground is much better for sinking. The rise in the seventy west is not yet holed. At the sixty west the lode is kindly, though but little ore. The tribute department in this part is looking favourable. At Good Fortune shaft, sinking below the forty-four, the lode is worth 10s. per fathom. The forty-four east is two feet wide, and worth 11s. per fathom. At the thirty-four east the lode is large, and worth 8s. per fathom. The tribute department in this part is looking rather better than usual.

W. SYMONS.

TREQUILLAN MINING COMPANY.

Sept. 12.—The lode in sinking Baker's shaft is chiefly composed of capel and spar, and yielding a small quantity of ore; the ground remains favourable for sinking. The lode in the fifty fathom level east is at present poor, though having a promising appearance; the ore recently passed through in this level is about three fathoms in length, and we have been enabled to set a pitch in the back at 1s. 11d. The pitches generally are without much alteration. We shall sample on Monday next, at Wadbridge, about fifty-six tons of tolerably good quality ore.

J. NINNIS.

TRETTOL MINING COMPANY.

Sept. 12.—The lode in the forty fathom level, east of Williams's shaft, is sixteen inches wide, very good tribute ground. The lode in Henwood's shaft is one foot wide—good tribute ground. The lode in the thirty fathom level, east of Henwood's shaft, is six inches wide, producing good stones of ore. The north part of the Slide-park lode, at the edit level, west of John's shaft, is four inches wide—tribute ground. The tin lode which we are sinking at the edit level, east of Mercom's shaft, is much as last reported—seven feet wide, and very good tin ground.

H. WILLIAMS. J. MORCOM.

UNITED HILLS MINING COMPANY.

Sept. 13.—Williams's Shaft.—No lode broken in this shaft for the past week. Sixty Fathom Level, Eastern End.—Lode about three feet wide, eighteen inches ore of fair quality; western end, lode from four to five feet wide, producing some very good ore—a little improved since last reported. Fifty Fathom Level.—In this end the lode is three feet wide, two feet good ore; in the mine sinking below this level the lode is two and a half feet wide, with a kindly appearance. Eastern Shaft.—Lode three feet wide, eighteen inches ore on the north part producing ore. Forty Fathom Level.—The lode in this end is four feet wide, with stones of ore.

N. LANGDON.

WEST WHEAL JEWEL MINING ASSOCIATION.

Sept. 12.—No alteration in the ground in Hockingham's shaft since our last. In the seventy east, on Wheel Jewel lode, the lode is worth 25s. per fathom. The seventy west we have intersected, and opened on the lode about two feet; it is fifteen inches wide, of a very kindly appearance, and the ground very favourable. The fifty-seven west has not been taken down since our last; this level east is in a disordered state. The lode in the mine, under the fifty-seven east, is worth 10s. per fathom. The forty-two east of little cross-course, on Wheel Jewel lode, is worth 25s. per fathom.

S. LEAN.

YAMAR SILVER-LEAD MINING COMPANY.

Sept. 12.—In the 125 fathom level the lode is eighteen inches wide, producing a small quantity of ore. In the 115 fathom level the lode is one foot wide, carrying small branches of rich silver-lead ore. In the 105 and 95 fathoms the lode is six inches wide, composed of muddle and ore, but rather poor. In the ninety-five and the lode is one foot in width, carrying two branches of rich ore. In the eighty-five fathom level the lode is at present intersected with a slide-course, and unproductive of ore. In the sixty-five and the lode is two feet wide—one foot of which is good saving work. In the fifty-five and the lode is eighteen inches in width, producing some very promising work, but not rich. In the forty-five fathom level the lode is eighteen inches wide, composed of capel and spar, but poor for silver-lead ore. In the tribute department the men continue to work well; and we sold on Saturday last, the 10th inst., to Messrs. Mitchell, two parcels of silver-lead ore, computed 214 tons—viz., No. 1, 53 tons, at 15s. 5s. per ton; and No. 2, 214 tons, at 24s. 8s. per ton. At the north mine we expect to get the engine to work in about a fortnight.

J. SPRAGUE.

CONRADIAN MINING COMPANY.

Sept. 12.—The lode at the seventy fathom level driving west is one foot wide, composed of kookan—ground favourable. The sixty fathom level west is much improved; Chiverton lode is three feet wide, interspersed with good branches of lead. We have again cut north to the north lode, and find it to be large and promising, yielding good work; on this lode I shall be able to report more fully soon. The lode in the fifty fathom level is about eighteen inches wide, and of a promising character. We have withdrawn the men from the forty fathom level, east of old west shaft, on the south lode, for the purpose of rising from the back of the sixty fathom level, in communication with the mine sinking below the fifty fathom level; the pitch set in the back of this (the forty fathom level) is looking well. The ground in the thirty-two fathom level, driving to cut the south lode, is congenial to lead. All other operations are without notable alteration.

J. WEBB.

FOREIGN MINES.

ST. JOHN DEL REY MINING COMPANY.

Products for May.—7830 cils. 44 grs. = 75 lbs. 2 oz. 19 dwts. 8 grs.

REAL DEL MONTE MINING COMPANY.

Mineral del Monte, July 11.—With regard to mining matters there is not much news to communicate, but on two or three points we have some important prospects. First, I would notice the discovery of ore in the 157 vane upper level, driving east on the Tapana. We have just commenced to sink a mine on the vein, where it is two vane wide, all aqueous ore, and from its appearance likely to prove of any benefit. In Santa Yana we have at present some very good ore in the twenty-seven vane level, driving north and south from a vane sixty-three vane south of San Vicente shaft; the end driving south is best, but both look well. In Anseta the prospects are fair as to raising good ore for some time to come. The ley of the best ore, however, has come down a little, but that is compensated by the additional quantity of good aqueous ore. We are prevented sinking the old Anseta shaft on account of water, which goes down very slowly. The ground in the new cross-cut from San Pedro is hard, but the work is pushed with all possible dispatch. The engine at present has very little to do, but we may hope to cut down the water from the old Anseta shaft before reaching the vein.

July 19.—After further consideration as to the time for dispatching the first parcel of bars to Vera Cruz, we have thought it best to let the whole of the present month's produce be included in the remittance. The wages will, therefore, be kept about a week longer than we had first intended, and will probably leave this about the 15th of August. The number of bars will rise, however, be increased; I hope nearly as follows:—June produce, 263 bars; July ditto, 43—total, 112 bars. The June bars are assayed and ready—those for July may be one or two, more or less, than is stated above, the number depending upon the weather and other circumstances. The various mine operations are proceeding with all due regularity, and the mine prospects are, upon the whole, quite as favourable as they have been for some time past. The mine of Anseta still gives the most favourable produce as before, and the bottom of San Guillermo mine continues to sink well. The San Antonio cross-cut, driving south from San Pedro shaft, is still without water. Remittance produce occasional branches of ore, which about the middle of the month of the month. Santa Yana is, upon the whole, a little more promising than usual, and, if the present prospects continue, the profits of that acquisition will be increased in the present year. The produce of the mine of Dulacres continues, I repeat to say, to diminish in quantity and price. Some trial, however, is now making of a north part of the lode, by the new level, which corresponds to the Anseta shaft, now driving. In order to know the water of San Capitan in the Dulacres new engine; and while it is a necessary and useful work for that purpose there is a chance of making some discovery by it upon a part of the vein which has not been very little examined. The Tapana vein, at the 157 vane upper level, South of Dulacres, still looks favourable, and produces some of a low ley—a trial of which we shall soon make in the pit. In the deep workings at Terrence the Southern level has been carried on upon good ore rather more than we had expected, looking at the termination of the ore at the level above, and thus affords a hope of improvement in this part of the mine.

BOLANOS MINING COMPANY.

San Clemente, June 25.—Monthly Report.—The sinking of the Tiro General was resumed in the beginning of the month, for the purpose of examining the vein which had partly entered the shaft previous to its being suspended in May last; it has been sunk during the month five and a half vane, and has passed through a vein underlying south, at an angle of 73°, divided into several branches—the whole forming a body about two vane wide; the greater number of the branches are composed of bronceo calderas and blende, and contained, according to the assays, from 3½ to 4 mcs. per moneta. The bottom of the shaft is at present in clear greenstone, and twelve men can sink about one and a half vane per week. The vein above described, though not rich, appears to me worthy further trial at a greater depth, and if the sinking of the shaft be continued, with the object of exploring San Clemente and Buen Suceso veins below the San Fernando level; the former might, by the same means, be examined, by dividing a cross-cut south. In San Fernando level, driving west on the San Clemente vein, the latter is about three quarters of a vane wide, divided into two branches, containing bronceo of inferior ley, in hard ground. In the same level driving west, on Buen Suceso vein, appearances are more favourable; the vein is about a vane wide, composed chiefly of bronceo calderas and blende, interminable, however, with a small quantity of a better kind, containing 12 mcs. per moneta. The vein in this level is nearly perpendicular, and it has ever shown a slight inclination towards the south, whereas in the Romanico mine, sinking below the La Luz level, for the purpose of being communicated with it, the vein has a regular north underlay of about 70°; it would seem, therefore, that the vein between the two levels has either changed its underlay or formed a junction with another branch not hitherto seen in the upper workings; this will, however, be clearly shown when the mine reaches the depth of San Fernando level. It will be seen by the listwork that a new cross-cut was commenced in the beginning of the month, driving north, at La Luz level, opposite San German shaft, the principal object of which is to cut the transverso vein, the Buen Suceso vein, and to examine the ground north of San Clemente vein, which, in this part of the mine, has remained hitherto comparatively unexplored. In La Luz level driving east the vein is about a vane wide, composed of hard quartz and bronceo, disseminated throughout in small quantities; it has, however, a rather promising appearance. The sinking of El Carmen mine was suspended on the 18th inst., in consequence of an increase of water, which we found difficult, as well as expensive, to drain by means of pumps. The transverso vein, which joins that of San Clemente, near El Carmen mine, and separates towards the west, taking a north-easterly direction, varies from a quarter to a half vane wide, and is sometimes divided into branches, forming a body of three-quarters of a vane; the ore from this vein contains an average ley of 13 to 14 mcs. per moneta, and no part of it is seen entirely without ore; but as the ground is hard, and the branches rather small, it does not yield sufficient quantity to make the barretteras wages working solely on cargo; you will see, therefore, that I have given an ayuda in this place, because it is exploring new ground on a promising vein, and the ore broken even at present cover the expenses. The total quantity of ore extracted during the month, including about 280 cargoes cleaned from the Terreno, amounts to 900 cargoes, of which about 470 cargoes were raised on cargo, principally from the labor of San Antonio, west of San German shaft.

San Nicolas.—I noticed in my letter of May 29th that it was intended to resume the driving of Diosa Gue cross-cut north of the shaft, for the purpose of examining the Buen Suceso vein at that level, which was accordingly done in the beginning of the month, since which it has been extended five and three-quarter vane, and four or five small branches have been cut through; the widest, however, does not exceed one-quarter vane, but they all contain ore, most of which, however, are of an inferior ley, those of the best quality averaging eight mcs. per moneta. It is proposed to continue the driving of this cross-cut a few vane further north, as possibly there may be other branches still to be discovered. In the San Francisco level scarcely any ore has been found in the vein west of the dislocation, mentioned in my letter of last month; the vein preserves its usual width of about three-quarters of a vane, composed chiefly of hard quartz. The La Luz level west has been driven in the month three and three-quarter vane, and produced 100 cargoes of ore. About a fortnight since a vein nearly three-quarters of a vane wide, having a direction north-east and south-east, was discovered in the end joining that on which the level was driving; the whole formed a body of two and a quarter vane wide, the greater part of which was composed of aqueous ore (bronceo) of a fine appearance, but rather inferior ley, the assays of the "grueso común," or cleaned ore, having varied from four to twelve mcs. per moneta. In the two planes called San Silvestre, sinking below the level, the No. 1, or that situated furthest east, is the most productive, the veins having continued about three quarters of a vane wide, of ore of good quality, and eight men in the last four weeks broke 1900 cargoes. In No. 2 the branch is not so wide, neither is the quality so good, and of late only four men have been employed here, who broke in the month seventy-four cargoes, containing, per assay, about ten mcs. per moneta. These two planes are now little short of being ten vane below La Luz level, at which depth it is proposed to open laborers in the end of each, leaving pillars for the present remaining in the bottom of the level. The total extraction for the month is about 1600 cargoes, being about 600 cargoes less than the quantity raised in the month of May; this may be accounted for, by observing that the ground in the level of San Francisco and San Fermin, on the San Juan vein, is nearly all worked out, and to a falling off in the produce from the vein of San Francisco level and from San Silvestre mine No. 2, below La Luz, already noticed; I propose, therefore, to increase the number of pillars in the eastern month on the ore ground in the back, and in the mine below San Francisco and La Luz levels.

Birichea.—The old excavation, situated sixty vane south of the shaft, has been drained and cleared about eighteen vane below the surface, at which depth the workings are about twenty vane long; they are very irregular and narrow. We are still, however, continuing the clearing, and I hope we shall soon reach some part of the old bottom, which are reported to contain ore of good quality, although, it would appear, in small quantities, as the vein appears to be divided into small branches in hard ground.

San Clemente, July 12.—I am happy to be able to inform you that the total profits on our mine in this district, for the last quarter, have fully realized the estimates sent home in April.

In San Clemente the total profits were \$ 24,798 2 1
In San Nicolas 152,597 6 2
This we have been able to accomplish without entering in the quarter the small quantity of molting ore sold, and which will form part of the produce of the present month. As we have payments to make which belong to the last quarter, I am afraid I shall have some trouble in making such a large remittance as I promised; I shall, nevertheless, endeavor to send by the conduct of the 23d instant \$27,000, besides a bill for \$2000 on the British Treasury, which I now beg to enclose.

The following is the summary of costs and returns for month June, 1843:

	Total cost.	Total returns.	Net profit.
San Clemente	\$ 17,828 5 4	\$ 28,597 9	\$ 10,769 4 6
San Nicolas	39,841 7 0	100,173 1 0	60,332 3 0

ANGLO-MEXICAN MINING COMPANY.

July 25.—Ansonia.—In the plan of San Juan we have employed since heretofore. Of these three have been occupied by the mine, and six in opening the fresta (level) in the north-east. The ore in the last-named has become ramified, and the wide course mentioned in the last report has, in the most advanced points of the work, formed two hills, separated by a mass of unproductive rock, of about a vane in width. Both the hills have their direction and inclination to the lower wall of the vein. They may again unite, and form a productive charge, or intersect some lower branch of the vein, and then form a deposit of ore. In the plan itself the entire produce has been in terms of a good average ley, and in some places very rich. The work of business has improved, as compared with the previous week, and several of the pumps promise further improvement. The water in the plan of the shaft run in the week nearly one and a half vane. The produce of the mine for the week is estimated as follows, viz.:—Harcenda of San Juan, 30 cargoes; half bucanas, 30 cargoes.—Total, 120 cargoes.

Cuba.—In this mine we have employed twelve heretofore.—viz., six in the plan of San Juan, and six in the plan of San Pablo.—The plan of San Juan a small improvement has been observed, both in the quality and quantity of the ore, the direction of the same being at present on the dip of the vein. In San Pablo the "jalón" continues extending on the south-east side of the shaft. The ley of the ore, on an average, is low, but the quantity is gradually increasing. In the cross-cut of San Pablo the bottom has been continued in the depth of three vane; no ore has been found, except a small hill at two vane. The termination is on the quarter—that forms the mass of the vein. In the delinque of the Paraiso we have reached what appears to be the plan of the mine, but, as there is yet remaining some water, and an abundance of mud, I cannot say what quality or quantity of ore may be there. We have concluded during the week to bring out ore from the different points in the upper workings. The produce of the mine for the week may be estimated as follows, viz.:—San Juan, 30 cargoes; San Pablo, 65 cargoes; La Paraiso, 10 cargoes.—Total, 105 cargoes.

July 25.—Ansonia.—In this mine we have employed, in San Juan, seven heretofore.—viz., four in the plan and three in the fresta. In the fresta the ore is ramified, and generally poor. The inclination towards the lower wall of the vein still continues. In the plan the ore continues in the form of terraces, in a space of about three-quarters of a vane in width; the ley continues apparently good. The section of new coal near the old level advanced four vane in the work, and has employed two almadenas, two barretteras, and ten furnace. The water continues troublesome in the mine generally, with the exception of San Juan, where the quantity is small, and prevents the search for productive points in all the most promising ground of the

mine, but particularly that point intended to be explored by the general level of San Gregorio. The season has been very abundant in water, and all the increase observed in the mine is evidently from the surface; therefore, when the rains shall be over, we may expect to be freed from this embarrassment, and enabled to continue the very interesting level of San Gregorio. The work of business has somewhat improved as to the quantity of ore produced. The produce of the mine for the week may be estimated as follows:—Harcenda of San Juan, 100 cargoes; half bucanas, 34 cargoes.—Total, 134 cargoes.

Cuba.—In this mine we have employed fourteen heretofore.—viz., six in the plan of San Juan, and six in the San Pablo seven. In San Juan no material change has been observed in the week; the average quantity of ore is somewhat improved. In the plan of San Pablo the ore is gradually increasing in quantity, and the quality in some spots is very good, but the average ley is not over eight or nine mcs.; the ore seems to be extending along the vein to the south-east. In the Paraiso Mine we have concluded the drainage, and, of course, have made an examination of the plan of the mine; the ore we found there is poor, and very inferior to what was expected; better ore has been found in many points higher up in this mine, and, at this time, there are two points near the plan on the south-east side in tolerably good ore. The quantity of water in the mine is more than was expected, and, by our present system of drainage, at least must cost \$30 per week to keep it under. The greater part of this water is surface water. The produce of the mine for the week may be estimated as follows:—San Juan, 35 cargoes; San Pablo, 70; La Paraiso, 8—total, 113 cargoes.

THE MINER.

The miner pined at his dismal trade,
And lightened it with his song;
And the bounding notes that his totting made,
Rang echoing far along.
For a strong and a sturdy man was he,
And he wielded his pick right merrily.
The darkened vault around him hung,
And a bright and fitful light
That the flaring lamp's reflection flung
Was all that cheered his sight;
Yet his heart was far from his present toil,
And pure with the thoughts it could not soil.
The miner rests him his weary frame,
And peers through the thickened gloom;
A wondering thought o'er his features came
As he stood in his living tomb:
Did he dream? was it true that a silver tone
Had burst on his ear in that silence lone?
He dreamt not; for, in a loud shout
Rang through that chthon hall,
And a joyous hum from the gloom peeped out,
Blending his soul in thrall.
Was it angel or mortal he could not tell,
And his dazzled vision before it fell.
But the miner's fancy was soon at rest,
His heart it was calmed to pain,
For close to that angel form had pressed
A man with a hal and cane
"Pshaw!" cried the miner, resumming his pick,
And shouting his blows on hard and thick.
And thus in the miner's oftentimes lured
Forth from his narrow world
Out in wild fancy's region, when
His thoughts are backwards hurried
By some such counterpane as this—
Dashing to earth his cup of bliss.

MINING NOTICES.

[Under this head we purpose collecting such paragraphs as may appear in the provincial and other Journals, having reference to discoveries and improvement in mining operations at home and abroad. It is hardly necessary to observe, that we must not be considered to admit the correctness of the information conveyed, which, in too many instances, requires cautious investigation—the anxious expectations of parties in some instances, and the want of honesty in others, throwing a degree of responsibility on a Journal in giving publicity to reports, which we do not intend taking upon ourselves.]

VALUABLE DISCOVERY AT CWM TILERY.—We have much gratification in announcing that Mr. T. Brown, of Blina, has this week succeeded in proving upon his property, in Cwm Tillery, at a depth of 130 yards, the killed seam of coal, of unusual thickness and superior quality. The landed proprietors, and others of the district, are indebted to the enterprise and perseverance of this gentleman, for effecting the first opening in this rich mineral valley, which, for extent of range, quality, and quantity of coal commanded, may be deemed the most important mineral opening yet made in the Welsh coal-field. We sincerely congratulate the worthy and fortunate proprietor upon this valuable result of his outlay and enterprise, and also the public, and particularly the canal and dock companies, for so great and durable a discovery of the elements of prosperity.—*Monmouthshire Mercury.*

GREENWICH COLLIERY.—We are exceedingly gratified in being able to state that this week the experiments of the lenses of this colliery have been realized, and their enterprising exertions rewarded, by the discovery of a valuable seam of coal. The company have been exploring for this seam during the last two years, at a very great expense. Its average thickness is said to be about four feet, and it is of first-rate quality—in fact, the seam, we are assured, is a much superior one to that which the company have hitherto been working.—*Revival Worker.*

MINE ACCIDENTS.

Mostyn Mines.—(From a Correspondent).—On Tuesday last, a young man, named Thomas Brookes, while descending the ladder to go to his work, fell down the shaft, and was killed on the spot. He was found with his leg entwined around the whin rope, from which it appears that he had left the ladder to run down by the rope, and the rope being wet, was not able to maintain his hold; this appears to have been a custom with the young men when the shafts were not present, and we hope this melancholy result will be a sufficient warning to induce others to abandon such a dangerous practice.—*J. W.*

Holmbush Mine.—On Friday week, at Holmbush Mine, a hole being charged, but which did not explode on once as the men expected, J. Millett went to ascertain the cause, when the explosion took place, and part of the rock struck him in the back so severely that he died on the following day.

Gwynedd, near Aberystwyth.—John Letcher was suffocated a short time since, by venturing into a mine in this neighbourhood too soon after an explosion of gunpowder.

Dunstable Iron Works.—W. Parry was standing too near the rails of the incline, which conveys coal from Cwmsharph to the yard of the works, on Tuesday week, and looking at the loaded carriages coming down, when the empty ones going up struck him on his back to the inside, when the wheels passed over his legs and injured one so much that amputation was rendered necessary; but he shortly afterwards expired.

Bradwell.—On the 24th inst., while George Maltby was at work in a mine at Bradwell, he incautiously attempted to get some ore which was in a very dangerous state, and which he had been cautioned against meddling with; the consequence was that a portion of the roof of the mine fell in upon him, and inflicted such serious injuries that he died in a few hours afterwards.

Bulwer Accident at Patricroft Colliery.—About eight o'clock on Monday morning last, a pipe, at the top of one of the boilers at Messrs. John Lancaster and Co.'s Colliery, at Patricroft, burst, and, the hole being small, the escaping steam forced off a portion of the roof of the boiler-house, but fortunately no one was killed. The fireman, William Hadden, received a bruise on the leg from a piece of slate or brick, but was not seriously injured. The boiler had been in use for some time, and was in good order.

